ROSSI, B.D., kand. tekhn. nauk

Characteristics and constants of the newest industrial explosives. Vzryv. delo no.55/12:132-135 '64.

(MIRA 17:10)

1. Institut gornogo dela im. A.A. Skochinskogo.

ASSONOV, V.A.; ROSSI, B.D.

Causes of poisonous gas formation during underground blasting operations. Trudy Inst. gor. dela 4:114-122 '57. (MLRA 10:6)
(Blasting) (Mine gases)

BARON, Lazar' Izrailevich, prof., doktor tekhn. nauk; ROSSI, Boris Dominikovich; LEVCHIK, Stanislav Petrovich; IL'INSKAYA, G.M., tekhn. red.

[Shattering properties of explosives for mining] Drobiashchaia sposobnost' vzryvchatykh veshchestv dlia gornykh rabot. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po gornomu delu, 1960. 111 p. (MIRA 14:8)

(Explosives) (Mining engineering)

ROSSI, B.D., kand.tekhn.nauk; ROMADINOV, A.I., inzh.

Review of "Blasting" by I.IA. Rudenko-Morgun. Bezop. truda v prom. 5 no.2:35 F '61. (MIRA 14:2)
(Blasting)
(Rudenko-Morgun, I.IA.)

ROSSI, E.; RENTSCH, M.

Non-rheumatic and non-congenital cardiac defects. Pediat pol 36 no.9:913-926 S '61.

1. Z Uniwersyteckiej Kliniki Chorob Dzieci w Bernie Kierownik: prof. dr med. E.Rossi

(HEART DISEASES in inf & child)

ROSSI, K.

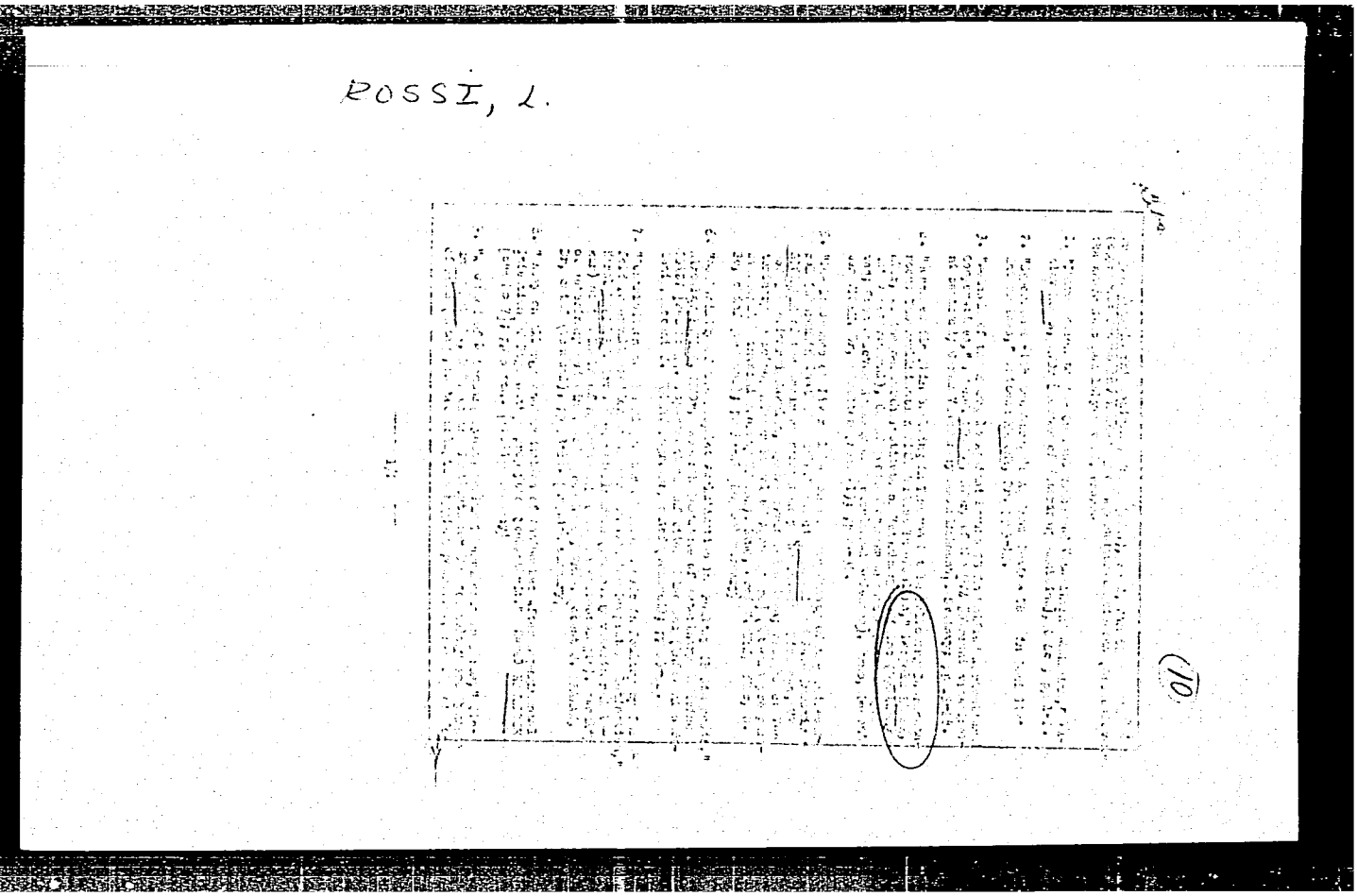
International standardization of the metric system. p. 36.

RATSIONALIZATSIIA. Vol. 6, no. 5, May 1956

Sofiia, Bulgaria

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 6, No. 1, January 1957

ROSSI, L.



ROSSI, Leopold, MVDr.

A nonspecific skin swelling of tuberculosis free cattle subject to the intracutaneous tuberculinization by various tuberculins. Veterinarni medicina 7 no.1:29-38 '62.

1. Vyzkumny ustav veterinarni, Ceskoslovenska akademie zemedelskych ved, Brno.

CZECHOSLOVAKIA

ROSSI, Leopold, Dr of Veterinary Medicine, Veterinary Medicine Research Institute (Vyzkumny ustav veterinarniho lekarstvi), Docent Engr Jan VLCEK, Dr of Veterinary Medicine, director.

"Evaluation of the Purified Tuberculoprotein and Koch Vetus Bovine Tuberculin by Means of a Comparative Intracutaneous Tuberculin Test"

Prague, Veterinarni Medicina, Vol 8(XXXVI), No 5, October 1963, pp 363-368.

Abstract [Author's English summary, modified]: A method used in East Germany was applied to evaluate a purified tuberculoprotein by a comparative intracutaneous tuberculin test with 50% Koch vetus tuberculin. By means of this method 8.9 percent more positive reactions were found already after one intracutaneous tuberculinization. A clinical evaluation confirmed a higher activity in Soviet and German tuberculoproteins. Fifteen references, including 4 Czech and 1 Hungarian.

1/1

ROSSI, Leopold, MVDr.

Examination of the specificity of bovine and avian tuberculin. Veterinarni medicina 6 no.11:877-882 N '61.

1. Ceskoslovenska akademie zemedelskych ved, Vyzkumny ustav veterinarni, Brno.

BOSSI, Leopold
SURNAME, Given Names

Country: Czechoslovakia

Academic Degrees: DVM

Affiliation: (not given)
Prague,
Source: Sbornik CSAZV Veterinarni Medicina, Vol 6(34), No 7, July 61; pp 495-506

Data: "Simultaneous (Combined) Vaccination Against Erysipelas and Swine Pest"

GPO 981643

CZECHOSLOVAKIA

ROSSI, Leopold, Dr of Veterinary Medicine, VUVL [Vyzkumny ustav veterinarniho lekarstvi; Veterinary Medicine Research Institute], Brno; experiment was conducted at the Bioveta National Enterprise, in Ivanovice na Hane and Nitra.

"Combined Vaccine Against Swine Plague and Erysipelas"

Prague, Veterinarni Medicina, Vol 8 (36), No 3, May 1963, pp 165-172.

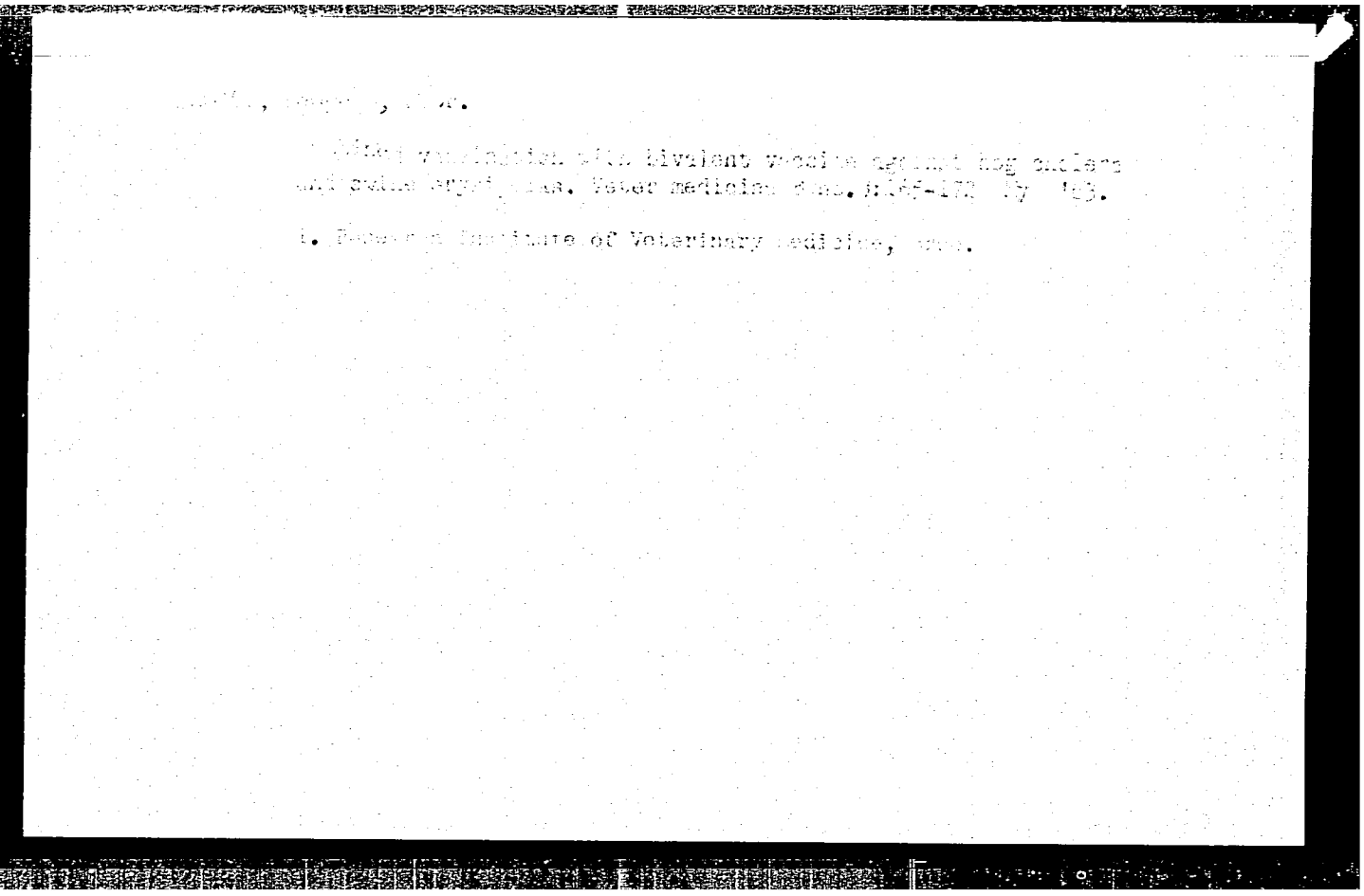
Abstract [Author's German summary, modified]: Three mixed (bivalent) vaccines were prepared: a)A combination of the crystal-violet vaccine against swine plague and formaline adsorbate vaccine; b) a combination of the crystal-violet vaccine against swine plague and adsorbate vaccine without formaline; and c) a combination of three portions of crystal-violet vaccine and two portions adsorbate vaccine without formaline. These vaccines were tested on 130 hogs. It was found that immunization was good against erysipelas, but unsatisfactory against plague.

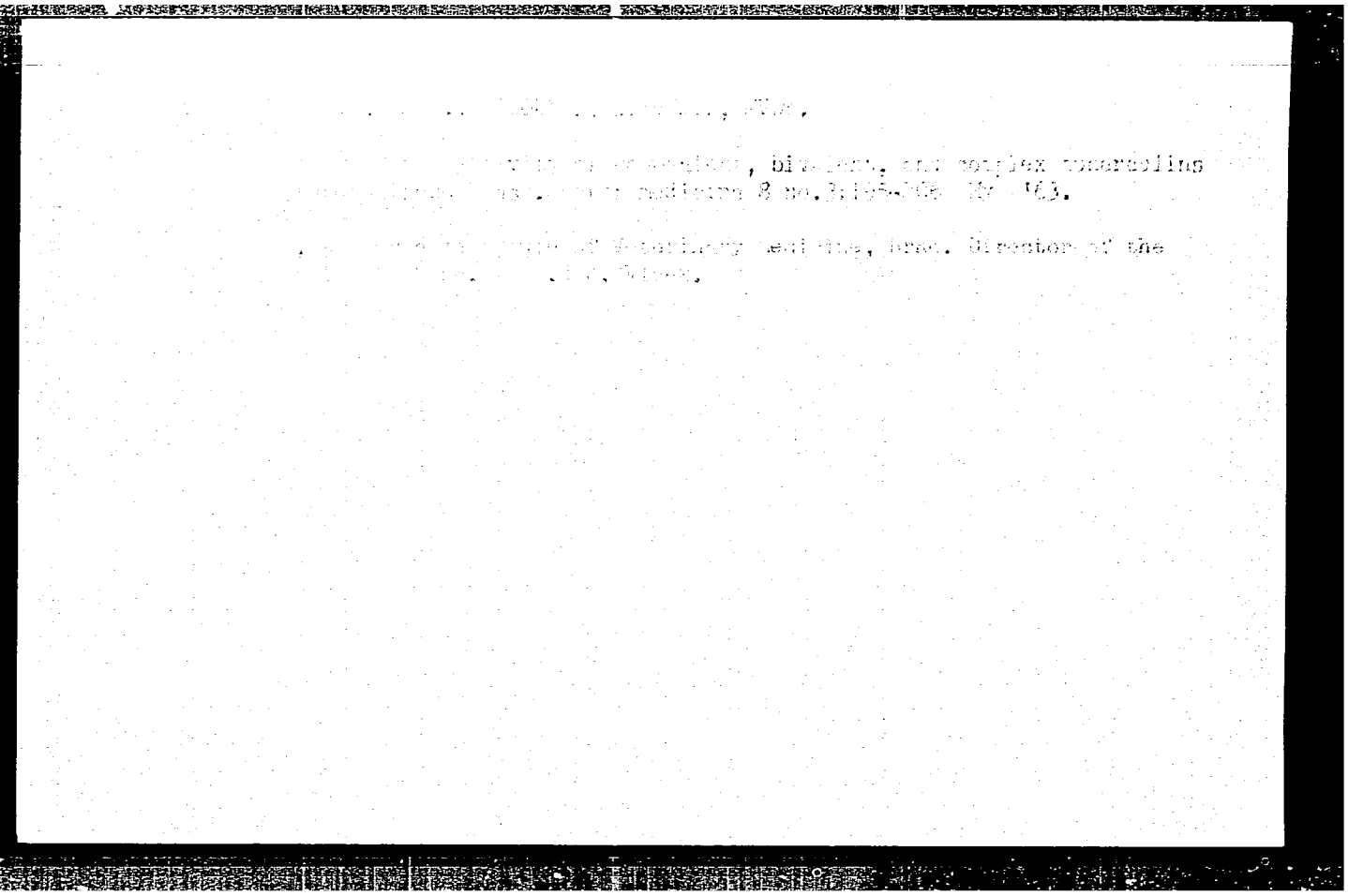
1/1

R[illegible]S[illegible], Leo[illegible], MVDr.

Evaluation of the purified tuberculoprotein and Koch vetus bovine tuberculin by a comparative intracutaneous tuberculin test. Acta [illegible] medicina 8 no.5:361-368 O '6[illegible].

1. Research Institute of Veterinary Medicine, Brno. Director of the Institute: Doc. MVDr. Ing. Jan [illegible].





PAVLAS, Milan, MVDr.; ROSSI, Leopold, MVDr.; DOKOUPIL, Slavomir, MVDr.

Causes of a new occurrence of cattle tuberculosis in agricultural enterprises freed of tuberculosis. Veter medicina 9 no.1:1-10 Ja '64.

1. Research Institute of Veterinary Medicine, Brno. Director of the Institute: [doc. dr. inz.] J. Vlcek.

ROSSI, Leopold, MVDr.

Comparative study of the allergenic effectiveness of some nonspecific allergens (Vestfalin, 443, Smegmatin, Rabin, Phlein) with tuberculins in cattle infected spontaneously with M.bovis and M. avium. Veter medicina 9 no. 2:69-80 Mr '64.

1. Research Institute of Veterinary Medicine, Brno. Director [doc. MVDr.] J.Vlcek.

ROSSI, Maria Maddalena

Women In Italy

We defeat the plans of the warmongers, Sov. zhen. 9 No. 2, 1953

Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

ROSSI, MARIA MADDALENA

Peace

We defeat the plans of the warmongers. Sov. zhen. 9, No. 2, 1953.

SO: Monthly List of Russian Accessions, Library of Congress, June 1953, Uncl.

ROSSIAN, Tadeusz, inz.

Liquidation of the influence of varying gravitational pressure in water pump heating. Gaz woda techn sanit 37 no.2:63-65 F '63.

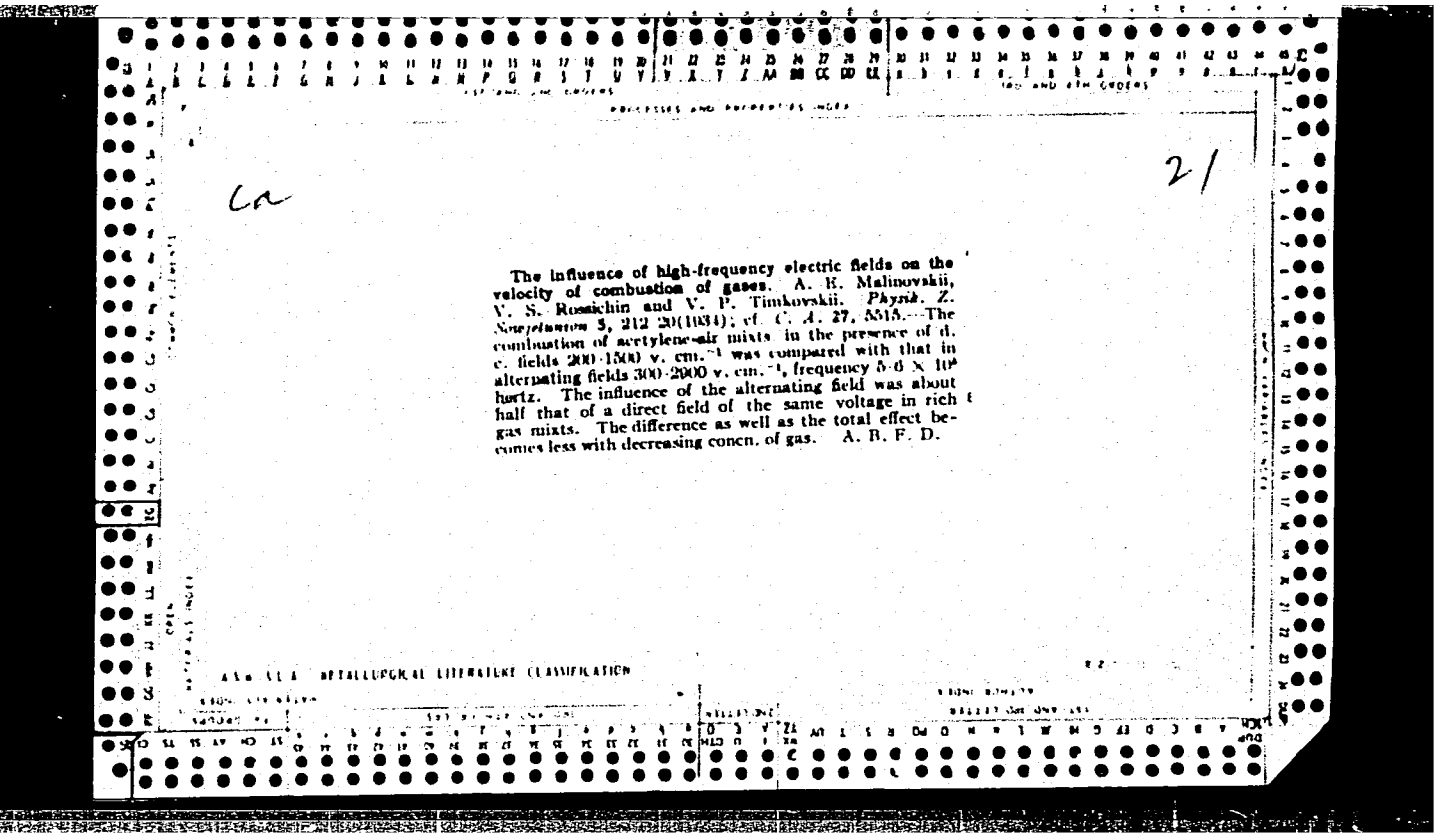
GOL'DBERG, L. Ye; ROSSOLIMO, O.K.; STANISLAVSKAYA, M.S.; VERTOGRADOVA, T.P.; BLYUMBERG, N.A.; KREMER, V.Ye.; BELOVA, I.P.

Experimental study of the antitumor activity and effect on the body of antibiotic 323/58. Antibiotiki y no. 10:884-888 O '62. (MIRA 16:12)

1. Laboratoriya eksperimental'nogo izucheniya lechebnykh svoystv novykh antibiotikov (zav. -- prof. V.A.Shorin) Instituta po izyskaniyu novykh antibiotikov AMN SSSR.

MAISKO, B.M.; ROSTOTSKIY, I.B. (Moskva)

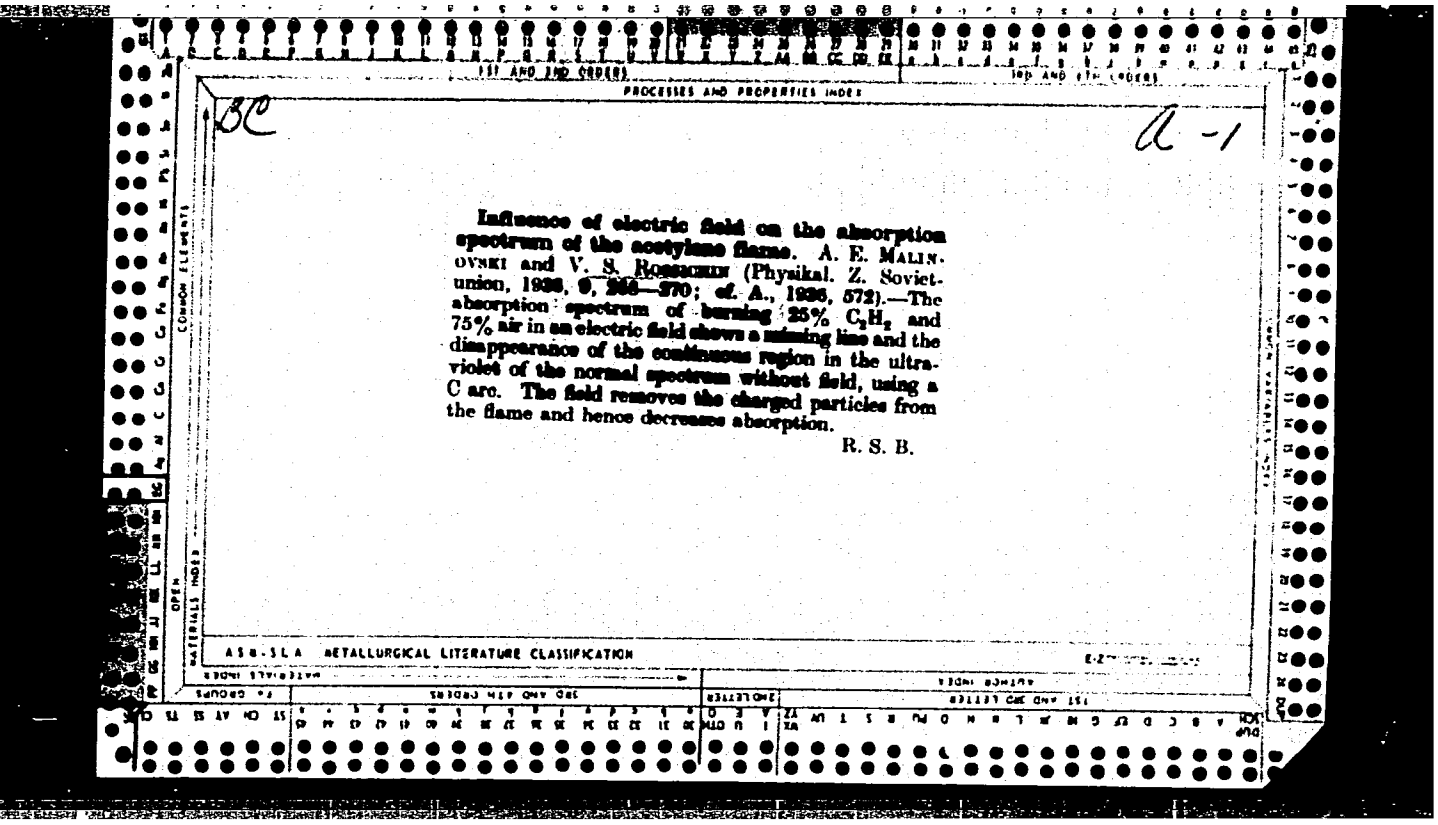
Mechanization in handling medical records in hospitals and polyclinics. Sov. zdravookhr. 22 no.3:62-65 '63 (MIRA 17:1)



Ca

21

The influence of high-frequency electric fields on the velocity of combustion of gases. A. B. Malinovskii, V. S. Rossikhin and V. P. Timkovskii. *Physik. Z. Sowjetunion* 5, 212-20(1934); cf. *C. A.* 27, 5515.—The combustion of acetylene-air mixts. in the presence of d. c. fields 200-1500 v. cm.$^{-1}$ was compared with that in alternating fields 300-2000 v. cm.$^{-1}$, frequency 5.6×10^6 hertz. The influence of the alternating field was about half that of a direct field of the same voltage in rich gas mixts. The difference as well as the total effect becomes less with decreasing concn. of gas. A. B. F. D.



PROCESSES AND PROPERTIES INDEX

BC

a-1

Influence of electric field on the absorption spectrum of the acetylene flame. A. E. MALINOVSKI and V. S. ROSSOCHIN (Physikal. Z. Soviet-union, 1936, **9**, 566—570; cf. A., 1936, 572).—The absorption spectrum of burning 25% C_2H_2 and 75% air in an electric field shows a missing line and the disappearance of the continuous region in the ultra-violet of the normal spectrum without field, using a C arc. The field removes the charged particles from the flame and hence decreases absorption.

R. S. B.

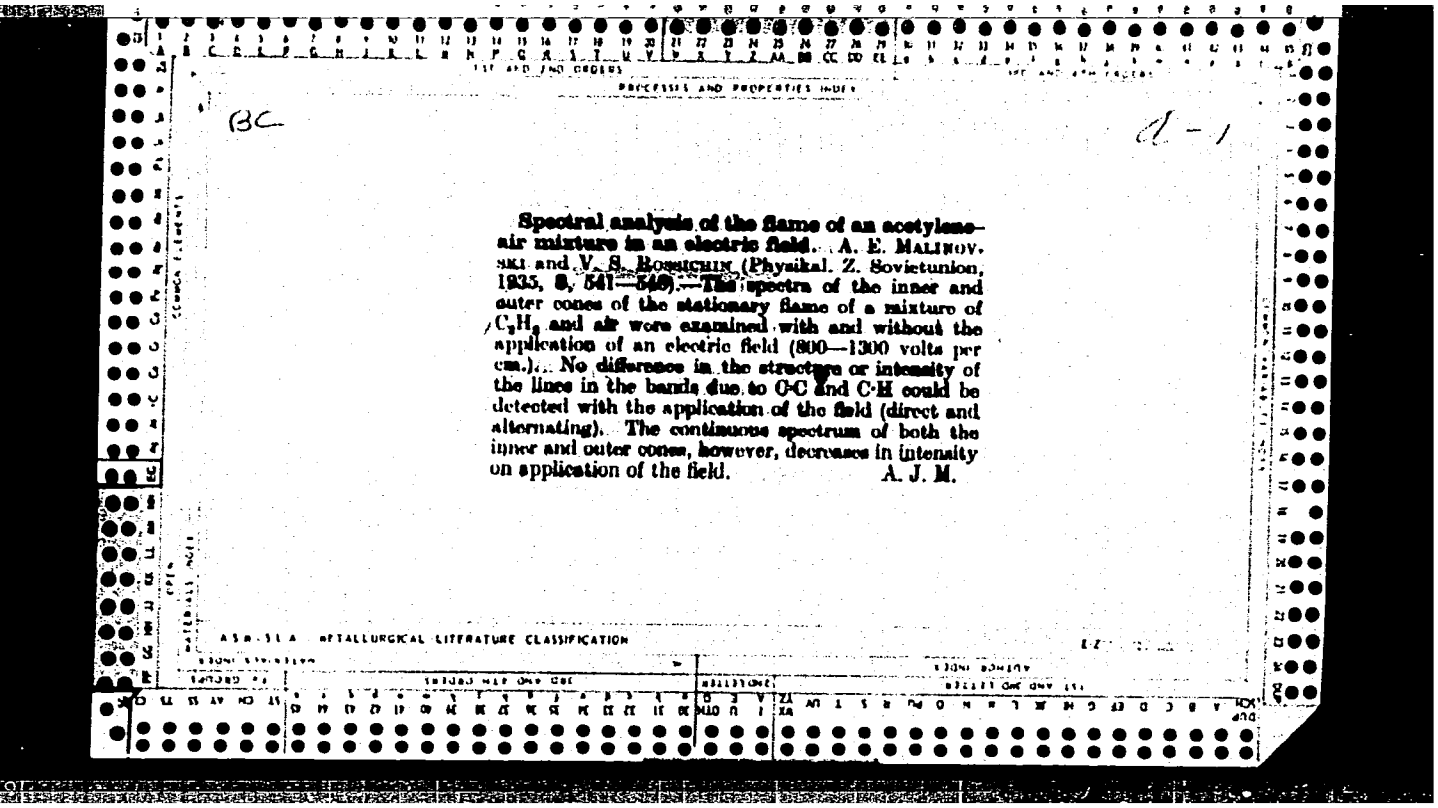
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Combustion of acetylene-air mixtures in a magnetic field. A. E. Malinovskii, V. S. Rossikhin and B. I. Navoloshnikov. *Physik. Z. Sowjetunion* 3, 517–41(1933). A strong magnetic field tends to repel the inner cone of a flame of 20–25% C_2H_2 with air. With mixts. contg. 10–20% C_2H_2 no effect was observed. E. J. Rosenbaum

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



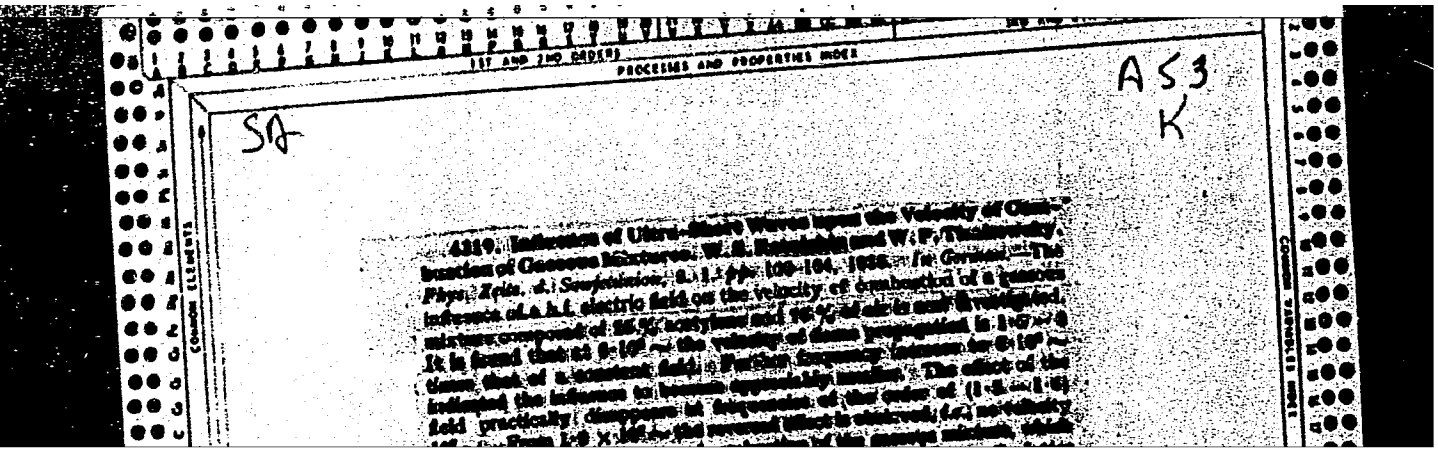
BC

A-1

Spectral analysis of the flame of an acetylene–air mixture in an electric field. A. E. MALINOVSKI and V. S. ROSSICHIN (Physikal. Z. Sovietunion, 1935, **8**, 541—548).—The spectra of the inner and outer cones of the stationary flame of a mixture of C_2H_2 and air were examined with and without the application of an electric field (800—1300 volts per cm.). No difference in the structure or intensity of the lines in the bands due to C-C and C-H could be detected with the application of the field (direct and alternating). The continuous spectrum of both the inner and outer cones, however, decreases in intensity on application of the field. A. J. M.

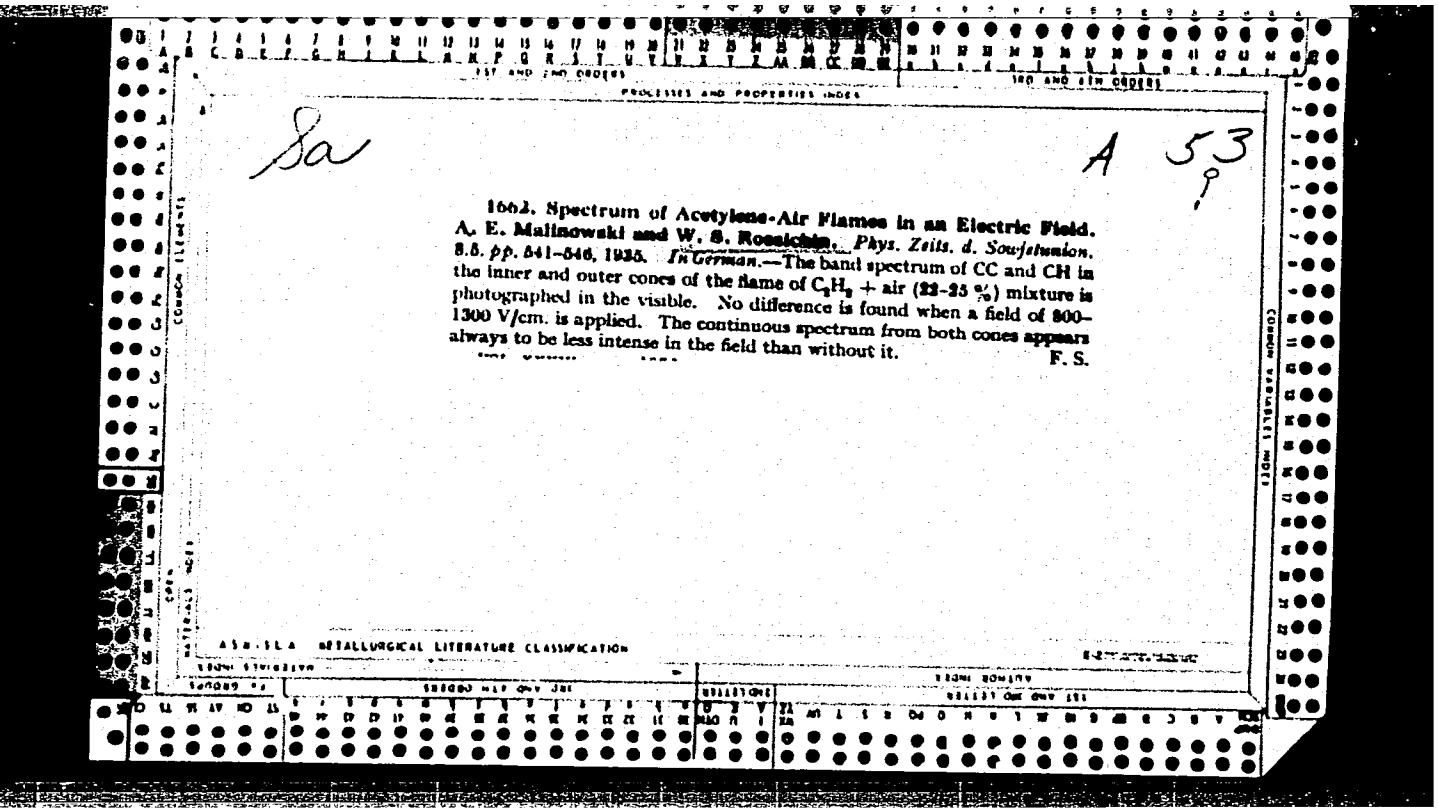
Spectral investigation of high-frequency discharge in acetylene–air flame. V. S. Rossichin and V. P. Timkovski (*Bull. Acad. Sci. U.R.S.S., Sér. Phys.*, 1941, 5, 219—221).—The combustion of a mixture of C_2H_2 25 and air 75% is accelerated by electric vibrations of frequency $>3{\cdot}4 \times 10^7$ cycles per sec. The emission spectrum of the flame in a field of $2{\cdot}5 \times 10^7$ cycles contains, in addition to the usual bands, N_2 bands, more CN bands, and Zn lines (from brass electrodes). In a field of $3{\cdot}7 \times 10^7$ cycles N_2 and N_2^+ bands appear, and the intensity of CH bands (3900 A.) and CN bands (3883 and 3871 A.) rises: this is associated with the acceleration of combustion.

J. J. B.



ROSSICHIN, W. S.

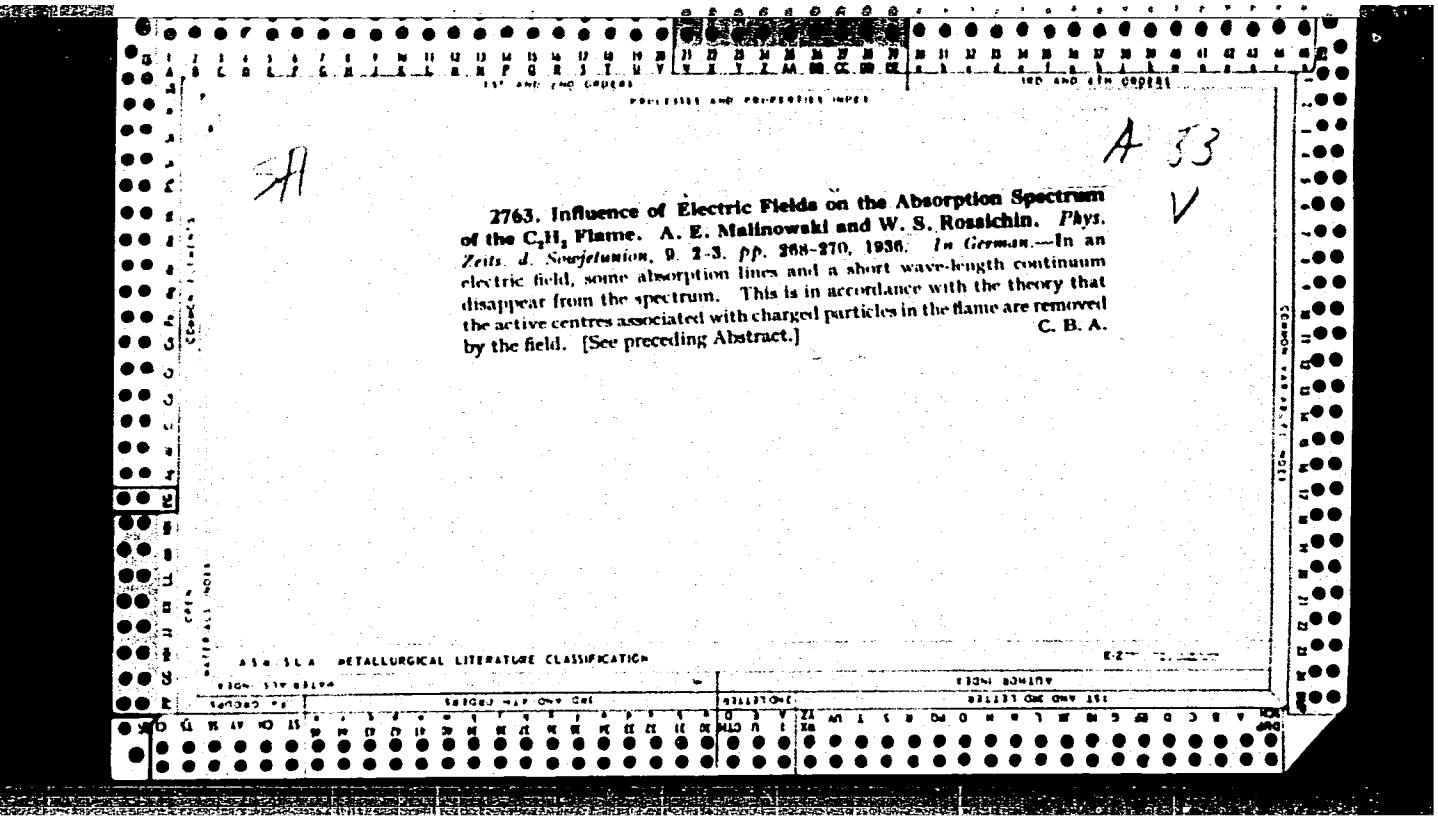
4319. Influence of Ultra-Short Waves upon the Velocity of Combustion of Gaseous Mixtures. W. S. Rossichin and W. P. Timkowsky. *Phys. Zeits. d. Sowjetunion*, 8. 1. *pp.* 109–104, 1935. *In German.*—The influence of a h.f. electric field on the velocity of combustion of a gaseous mixture composed of 25 % acetylene and 75 % of air is now investigated. It is found that at $6 \cdot 10^5 \sim$ the velocity of flame propagation is $1 \cdot 5 - 2$ times that of a constant field. Further frequency increase to $8 \cdot 10^5 \sim$ indicated the influence to become appreciably smaller. The effect of the field practically disappears at frequencies of the order of $(1 \cdot 5 - 1 \cdot 6)$ $10^7 \sim$. From $1 \cdot 5 \times 10^7 \sim$ the reversed effect is observed, *i.e.*, no velocity decrease, but an acceleration of combustion of the gaseous mixture, which in the e.h.f. field of $3 \cdot 4 \times 10^7 \sim$ increases by 20 %. Based on the latter observations it appears that the ultra-short waves produce activation of the gas mixture at the flame front. [See also Abstracts 2107 and 4248 (1934).] H. H. Ho.



Sa

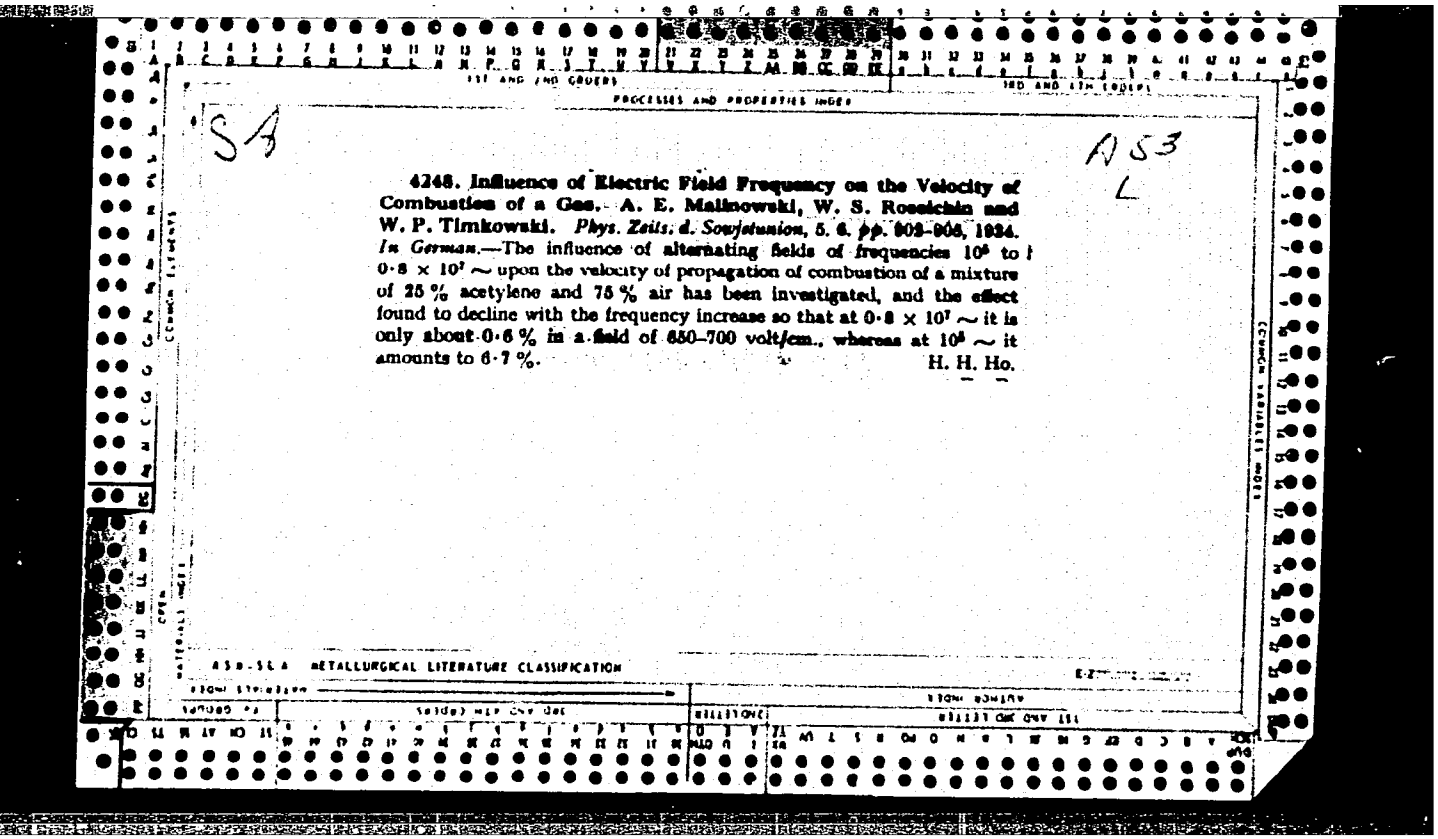
A 53
?

1662. **Spectrum of Acetylene-Air Flames in an Electric Field.** A. E. Malinowski and W. S. Rossichin. *Phys. Zeits. d. Sowjetunion*, 8.5. pp. 541–546, 1935. *In German.*—The band spectrum of CC and CH in the inner and outer cones of the flame of C_2H_2 + air (22–25 %) mixture is photographed in the visible. No difference is found when a field of 800–1300 V/cm. is applied. The continuous spectrum from both cones appears always to be less intense in the field than without it. F. S.



2763. **Influence of Electric Fields on the Absorption Spectrum of the C_2H_2 Flame.** A. E. Malinowski and W. S. Rossichin. *Phys. Zeits. d. Sowjetunion*, 9. 2-3. *pp.* 268-270, 1936. *In German.*—In an electric field, some absorption lines and a short wave-length continuum disappear from the spectrum. This is in accordance with the theory that the active centres associated with charged particles in the flame are removed by the field. [See preceding Abstract.]

C. B. A.



PROCESSES AND PROPERTIES INDEX

S4

A53
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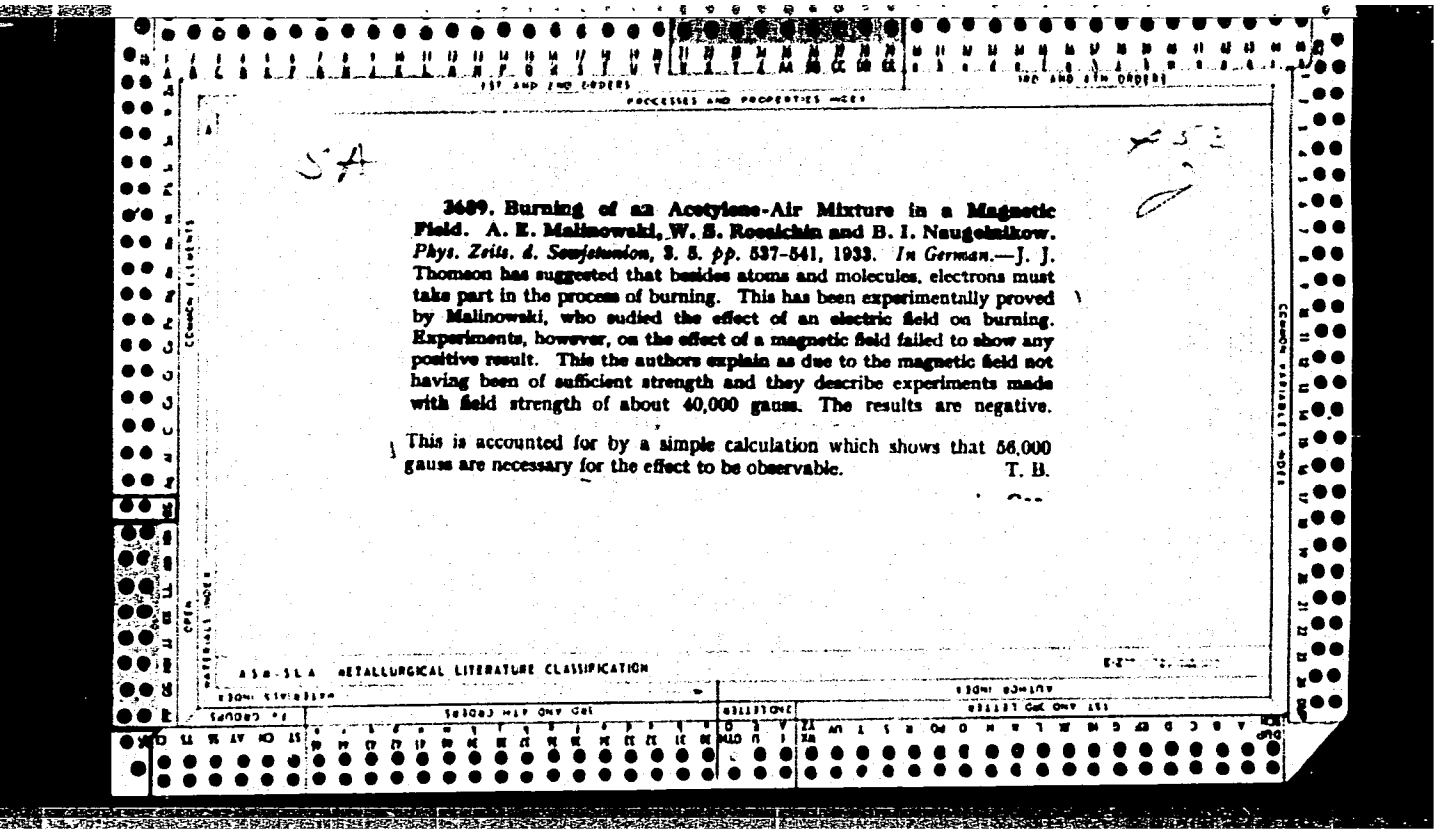
4248. Influence of Electric Field Frequency on the Velocity of Combustion of a Gas. A. E. Malinowski, W. S. Rossikhin and W. P. Timkowski. *Phys. Zeits. d. Sowjetunion*, 5. 6. *pp.* 903–908, 1934. *In German.*—The influence of alternating fields of frequencies 10^6 to $0{\cdot}8 \times 10^7 \sim$ upon the velocity of propagation of combustion of a mixture of 25 % acetylene and 75 % air has been investigated, and the effect found to decline with the frequency increase so that at $0{\cdot}8 \times 10^7 \sim$ it is only about 0·6 % in a field of 650–700 volt/cm., whereas at $10^6 \sim$ it amounts to 6·7 %.

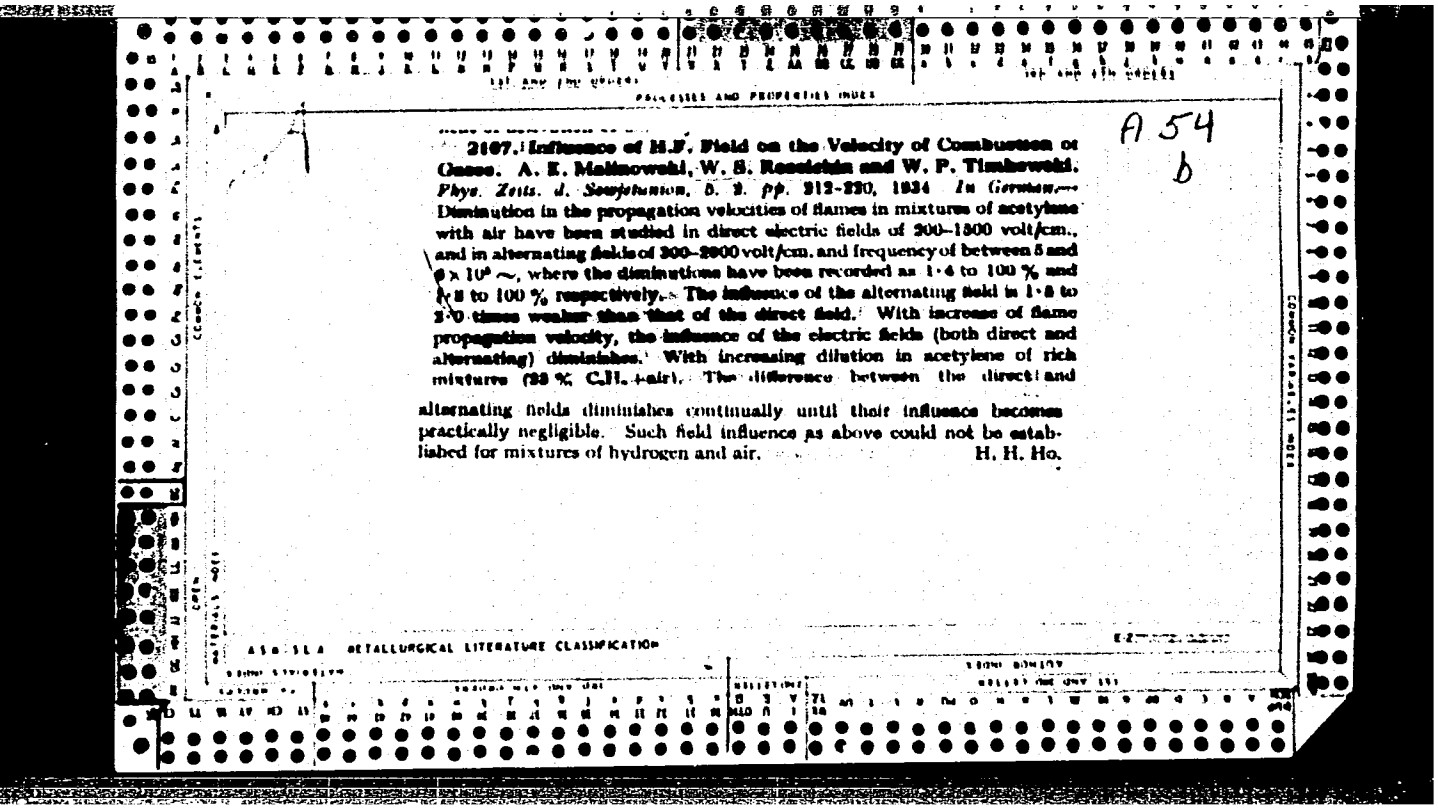
H. H. Ho.

A53-S4A METALLURGICAL LITERATURE CLASSIFICATION



3689. Burning of an Acetylene-Air Mixture in a Magnetic Field. A. E. Malinowski, W. S. Rossichin and B. I. Naugolnikow. *Phys. Zeits. d. Sowjetunion*, 3. 5. *pp.* 537–541, 1933. *In German.*—J. J. Thomson has suggested that besides atoms and molecules, electrons must take part in the process of burning. This has been experimentally proved by Malinowski, who studied the effect of an electric field on burning. Experiments, however, on the effect of a magnetic field failed to show any positive result. This the authors explain as due to the magnetic field not having been of sufficient strength and they describe experiments made with field strength of about 40,000 gauss. The results are negative.

This is accounted for by a simple calculation which shows that 56,000 gauss are necessary for the effect to be observable. T. B.



PROPERTIES AND PROPERTIES INDEX

A 54
b

2107. **Influence of H.F. Field on the Velocity of Combustion of Gases.** A. E. Malinowski, W. S. Rosenstein and W. P. Timoreweld. *Phys. Zeits. d. Sowjetunion*, 5. 2. *pp.* 312-330, 1934 *In German.*—Diminution in the propagation velocities of flames in mixtures of acetylene with air have been studied in direct electric fields of 200–1800 volt/cm., and in alternating fields of 300–2000 volt/cm. and frequency of between 5 and 6×10^6 ~, where the diminutions have been recorded as 1·4 to 100 % and 1·8 to 100 % respectively. The influence of the alternating field is 1·5 to 2·0 times weaker than that of the direct field. With increase of flame propagation velocity, the influence of the electric fields (both direct and alternating) diminishes. With increasing dilution in acetylene of rich mixtures (33 % C_2H_2 + air). The difference between the direct and alternating fields diminishes continually until their influence becomes practically negligible. Such field influence as above could not be established for mixtures of hydrogen and air. H. H. Ho.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

ROSSIJANSKIJ, N.L.

Certain aspects in the problem of nervism in dermatology. Cesk.derm. 26 no.6:216 June 51. (CIML 21:1)

ROSSIK, F.

The turnover of motor-vehicle drivers has been sharply reduced. Avt. transp. 41 no.8:11 Ag '63. (MIRA 16:11)

1. Inspektor po kadram 5-go Taganrogskogo avtokhozyaystva.

ROSSIK, F.

The turnover of motor-vehicle drivers has been sharply reduced. Avt. transp. 41 no.8:11 Ag '63. (MIRA 16:11)

1. Inspektor po kadram 5-go Taganrogskogo avtokhozyaystva.

USSR/Farm Animals. General Problems Q-1

Abs Jour : Ref Zhur - Biol., No 11, 1958, No 49942

Author : Rossikhin A.N.
Inst : Vologda Institute of Dairy Farming
Title : A New Method Determining Small Quantities of Zinc in Feeds

Orig Pub : Tr. Vologodsk. molochn. in-ta, 1956, vyp. 14, 321-327

Abstract : The method os based upon the reaction of zinc to methyl violet. Methods and techniques of the investigation are presented. Tables showing the zinc content in 12 basic feed formulas of the Vologda region are given.

Card : 1/1

L 10692-65 EPA/EWT(l)/EPA(s)-2/EWT(m)/EPF(c)/EPR/FCS(f) Pr-4/Ps-4/Pt-10/
Paa-4 AEDC(b)/AFTC(p)/RAEM(i)/AFETR/SSD/BSD/AFWL/SSD(a)/AEDC(a)/ASD(m)-3/
ESD(si) WW/JWD

ACCESSION NR: AP4044734 S/0207/64/000/004/0135/0136

AUTHOR: Karakozov, G. K. (Moscow); Rossikhin, G. V. (Moscow)

TITLE: The mechanism of intensification of acoustic oscillations by the burning surface of a solid fuel

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 4, 1964, 135-136

TOPIC TAGS: combustion, solid propellant, explosive, propellant, combustion instability

ABSTRACT: The conditions under which acoustic oscillations in the combustion of solid propellants are intensified by the burning surface were analyzed by use of the model shown in Fig. 1 of the Enclosure. A layer is considered which is bounded by the surfaces designated as (-) and (+). The distance between the surfaces is constant. The surface (-) is situated in the gas phase at a point where the reaction is completed. The heat flux through this surface is given by a small value. The change in parameters to the left of this surface is considered to be isentropic. To the right of the surface (+), the gas is

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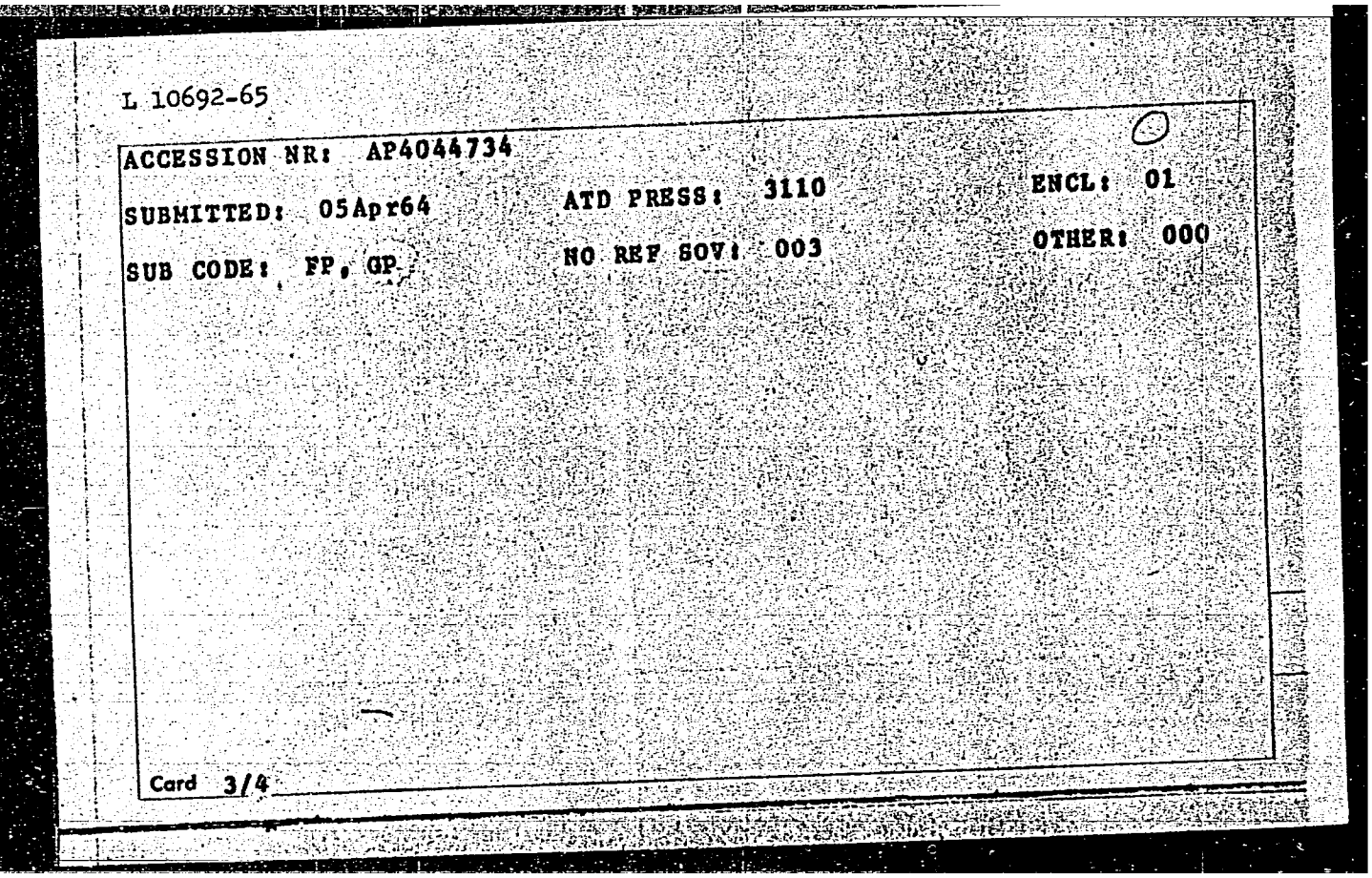
ACCESSION NR: AP4044734

ideal and has a fixed chemical composition. Curve 1 shows the density distribution in the layer at steady-state combustion. Curve 2 represents the adiabatic density distribution in the presence of a rapid pressure increase caused by passage of the acoustic wave front. Curve 3 represents the steady-state density distribution at a new pressure. The following criterion was derived for the intensification of high-frequency acoustic oscillations:

$$\frac{p}{m\tau}\left\{\left(\frac{\partial M}{\partial p}\right)_{\infty}-\left(\frac{\partial M}{\partial p}\right)_{0}\right\}+\frac{k-1}{k}-\left(1-\frac{\rho_{+}}{\rho_{-}}\frac{p}{\rho_{-}c_{-}^{2}}\right)>0,$$

where p is the pressure, m is the mass flux, τ is the characteristic time for redistribution of the parameters in the considered layer during relaxation, M is the mass in the considered layer, ρ_- and ρ_+ are density fluxes in the surfaces (-) and (+), respectively, k is the adiabatic exponent of combustion products, and c_- is the acoustic velocity in the surface (-). The subscript ∞ refers to the condition $\omega\tau \to \infty$, where ω is the frequency. Orig. art. has 10 formulas and 1 figure.

ASSOCIATION: none



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ACCESSION NR: AP4044734

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Card 3/4

L 10692-65

ACCESSION NR: AP4044734

ENCLOSURE: 01

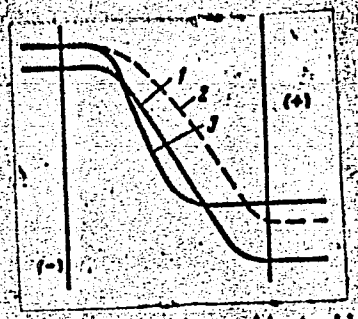

Fig. 1. Density distributions between surfaces (-) and (+)

L 30964-66 EWP(k)/EWT(d)/EWP(h)/EWP(l)/EWP(v)
ACC NR: AP6002155 SOURCE CODE: UR/0280/65/000/006/0121/0130

AUTHOR: Rossikhin, G. V. (Moscow); Breyman, V. B. (Moscow)

ORG: none

TITLE: Correct statement of problems in the random-function approximation theory

SOURCE: AN SSSR. Izvestiya. Tekhnicheskaya kibernetika, no. 6, 1965, 121-130

TOPIC TAGS: random function, random function approximation

ABSTRACT: The problem of determining a directly unmeasurable signal on the basis of observations of its statistically random function is considered. When the statistical characteristics (e.g., autocorrelation and crosscorrelation functions) are only approximately known, the optimal system designed on their basis may prove greatly inferior to the true optimal system; this is particularly true when the dependence of the system parameters on the statistical characteristics is discontinuous. It is demonstrated that very high approximation errors are possible in physical problems, in which finite deviations of the signal cause evanescent deviations of the observable function. A wider definition of optimality based on a

Card 1/2

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ACC NR: AP6002155

linear normalized space of random functions is suggested. It results in a mathematically correct generalization of the well-known criterion of the minimum mean-square error. The criterion is applicable to the solution of various technical problems, such as: finding the elements of motion of an object by its acceleration, space-time extrapolation of atmospheric parameters, reproduction of the desired signals in the presence of noise, etc. "In conclusion, the authors wish to thank Ya. B. Shor and B. V. Gnedenko for their attention to the problem." Orig. art. has: 1 figure, 72 formulas, and 2 tables.

SUB CODE: 12 / SUBM DATE: 24Nov64 / ORIG REF: 002

Card 2/2

ROSSIKHIN, S.

Self-unloading motortrucks for transportation of metals. Avt. transp. 36 no. 7:44-45 Jl '58. (MIRA 11:8)

1. Nauchno-issledovatel'skiy institut Ukrdortrans.
(Motortrucks)

ROSSIKHIN, V.

Stock and Stockbreeding - Accounting

How to audit state-farm reports on livestock-breeding expenditures. Den. i kred. 11 no. 6. '52.

Monthly List of Russian Accessions, Library of Congress, September 1952, Unclassified.

BUGREYEV,I.; ROSSIKHIN,V.

More attention to credit and payments to agriculture . Den.i kred. 13 no.6:15-19 Je '55. (MLRA 8:9)
(Agricultural credit)

L 9190-66 EWT(1)/EWT(m)/EPF(n)-2/EWP(b)/EWP(t) IJP(c) JD/JG/WW

ACC NR: AR6000115 SOURCE CODE: UR/0058/65/000/008/D032/D032

58

SOURCE: Ref. zh. Fizika, Abs. 8D261

AUTHORS: Zhitkevich, V. F.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L. B

ORG: none

TITLE: Excitation of metals in the vapors of some organic compounds

CITED SOURCE: Tr. Komis. po spektroskopii. AN SSSR, M., t. 2, vyp. 1, 1964, 240-246

TOPIC TAGS: metal property, optic spectrum, light excitation, flame, chemiluminescence

TRANSLATION: The authors investigated the glow spectra observed upon coalescence of jets of metal vapors (Bi, Ca, Cd, Mg, Na, Pb, Tl, and Zn) with a mixture of some carbon-containing substances with air at atmospheric pressure at 1000K. Atomic lines with excitation energy up to 7.78 ev and bands of several molecules were observed in the glow spectra. Comparison of the spectra of the reaction zone of a hydrocarbon flame, in which salts of the above-mentioned metals were introduced, with the investigated glow has shown that the latter has a purely chemiluminescent nature and is characterized by high population of the upper energy levels of the atoms. It is established that carbon and oxygen are indispensible participants in the formation of the glow zone.

SUB CODE: 20

Card 1/1 uds

OSTROUMENKO, P.P.; ROSSIKHIN, V.S.; TSIKORA, I.L.

Spectroscopic study of the mechanism of C_2 production in various types of discharges in a carbon dioxide atmosphere. Zhur. prikl. spekt. 3 no. 2:109-113 Ag '65. (MIRA 18:12)

1. Submitted Dec. 13, 1964.

L 8605-66 EWT(l)/EWP(e)/EWT(m)/EWG(m)/T/EWP(t)/EWP(b) IJP(c) DS/JD/WW/JG/WH

ACCESSION NR: AP5021163 UR/0139/65/000/004/0017/0022

AUTHOR: Ostroumenko, P. P.; Rossikhin, V. S.

TITLE: Temperature investigation of the discharge of a hollow cathode

SOURCE: IVUZ. Fizika, no. 4, 1965, 17-22

TOPIC TAGS: gas discharge spectrography, carbon, molybdenum, helium, oxygen, carbon dioxide, spectral line, temperature characteristic, pressure effect

ABSTRACT: The dependence of the rotational and vibrational temperatures in a hollow carbon and molybdenum cathode discharged in He, O_2, and CO_2 on the working gas, its pressure, and the discharge current are investigated. The cathode was constructed of graphite and molybdenum, 18 mm in diameter and 30 mm long (inside hollow). The discharge emission was projected on the slit of a Hilger spectrograph. The temperature was measured from the intensity distribution of a number of rotational lines of the CO^+ ion. The external heating of the cathode was observed and found to be nonuniform, the heating being most intense in its central portion. The rotational temperatures measured simultaneously from different molecules coincide with each other within the limits of error. The vibrational temperatures obtained from the bands of CO^+ do not coincide with the rotational ones. The rotational temperatures depend strongly on the working gas, its pressure, and the current.

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L 8605-66

ACCESSION NR: AP5021163 3

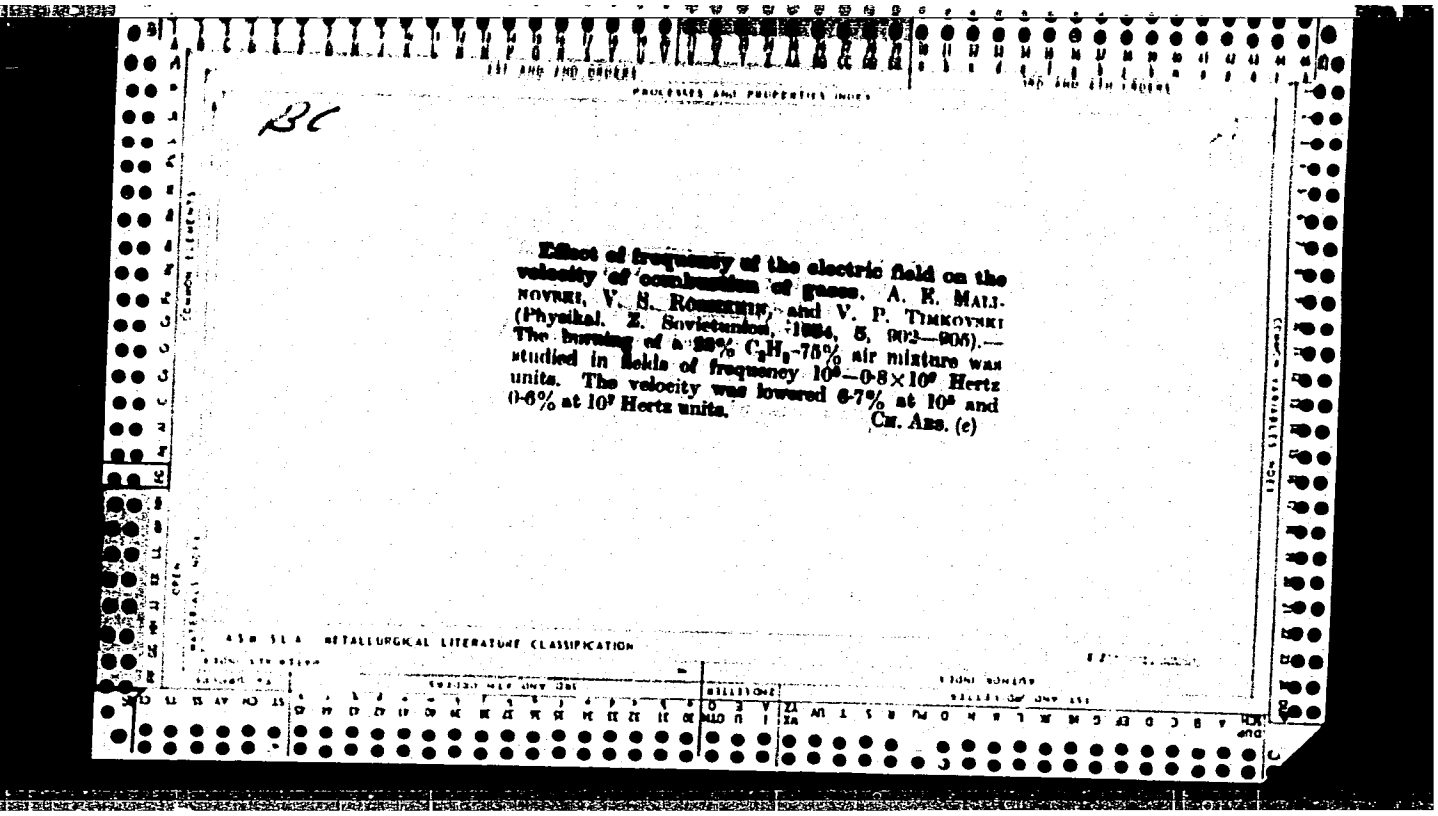
The temperature of the gas in the hollow of the cathode and the cathode walls can therefore be smoothly varied within a broad range. The CO^+, N_2^+, C_2, CN, and OH molecules in the hollow cathode can be characterized by a single rotational temperature corresponding to the temperature of the gas. Orig. art. has: 3 figures and 4 tables.

ASSOCIATION: Dnepropetrovskiy gosuniversitet imeni 300-letiya vossoyedeniya Ukrainy s Rossiyey (Dnepropetrovsk State University) 44,55

SUBMITTED: 21Dec63 ENCL: 00 SUB CODE: OP, GP

NR REF SOV: 007 OTHER: 003

Card 2/2 pw

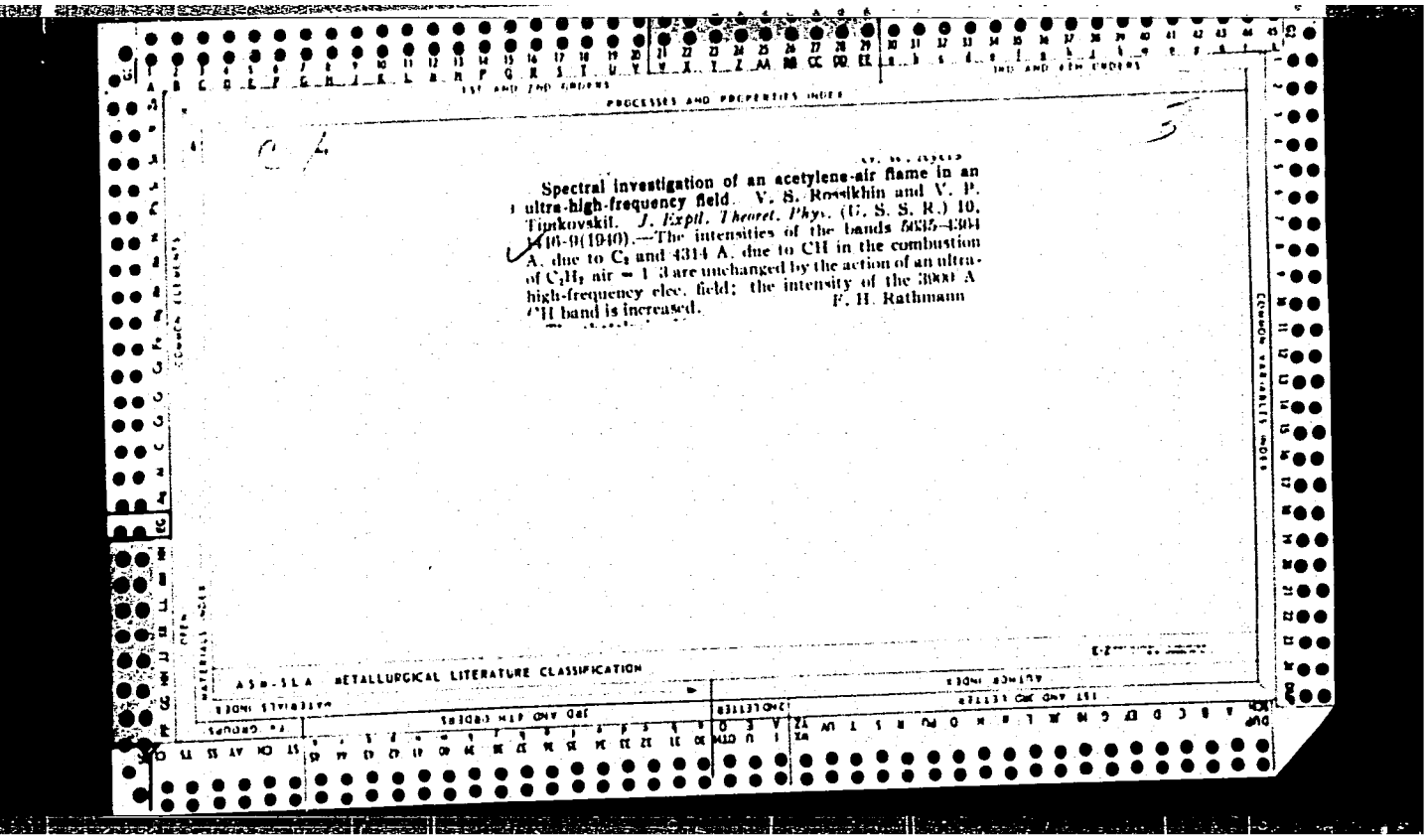


BC

Effect of frequency of the electric field on the velocity of combustion of gases. A. E. Malinovski, V. N. Rozanski, and V. P. Timkovski (Physikal. Z. Sowjetunion, 1934, 5, 902—906).—The burning of a 28% C_2H_2-72% air mixture was studied in fields of frequency 10^6—$0{\cdot}8\times10^9$ Hertz units. The velocity was lowered 6-7% at 10^8 and 0-6% at 10^7 Hertz units.

Cr. Abs. (c)

METALLURGICAL LITERATURE CLASSIFICATION



Spectral investigation of an acetylene-air flame in an ultra-high-frequency field. V. S. Rossikhin and V. P. Tinkovskii. *J. Exptl. Theoret. Phys.* (U. S. S. R.) 10, 1036-9(1940).—The intensities of the bands 5635–4304 A. due to C_2 and 4314 A. due to CH in the combustion of C_2H_2 air = 1:3 are unchanged by the action of an ultra-high-frequency elec. field; the intensity of the 3900 A CH band is increased. F. H. Rathmann

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION

ROSSIKHIN, V.S.

USSR

✓ 5509. ELECTRICAL CONDUCTIVITY OF UNSTEADY FLAME AT REDUCED PRESSURE. Rossikhin, V.S., Protopopov, A.I., Martynyuk, L.A. and Tsikora, I.L. Nauch. Zap. Dnepropetrovsk. Gos. Univ., Sborn. fiz.-mat. Fak. (Sci. Notes Dnepropetrovsk Univ., Bull. phys. math. Facs.), 1953, vol. 41, 9-12; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1954, (17), 39282). Experiments in 1948 had shown that conductivity of flames in acetylene/air mixtures depends mainly on conductivity of the inner cone. Experiments are now recorded with a moving flame in a cylinder of 15 mm diameter and 20 mm length with two longitudinal condenser plates of 0.0075 micro F capacity charged to 100 V. The charge remaining in the condenser after it had been discharged to V_o on the passage of the flame was measured with a ballistic galvanometer, and the time spent by the flame between the electrodes was calculated from $V_o = 100 \exp(-t/RC)$. The minimum time corresponded to 12% acetylene and maximum current to 10-12% acetylene. Change in current and in number of charged particles with pressure up to 380 mm mercury is expressed by $I = ap^2$, which is evidence of the bimolecular character of the ionization process. This and the lack of correspondence between change in current on the one hand and composition and temperature of flame on the other indicates the importance of chemical reaction in the process of ionization.

USSR/ Chemistry - Quantitative analysis

Card 1/1 Pub. 43 - 63/97

Authors : Nesterenko, V. K.; Rossikhin, V. S.; and Tsikora, I. L.

Title : Spectral analysis of small Cu, Pb, Bi and Fe admixtures in Sn

Periodical : Izv. AN SSSR. Ser. fiz. 18/2, 281-282, Mar-Apr 1954

Abstract : A method was developed for quantitative analysis of Sn for its content of Cu, Pb, Bi and Fe according to GOST (State Standard) 860-41. Table.

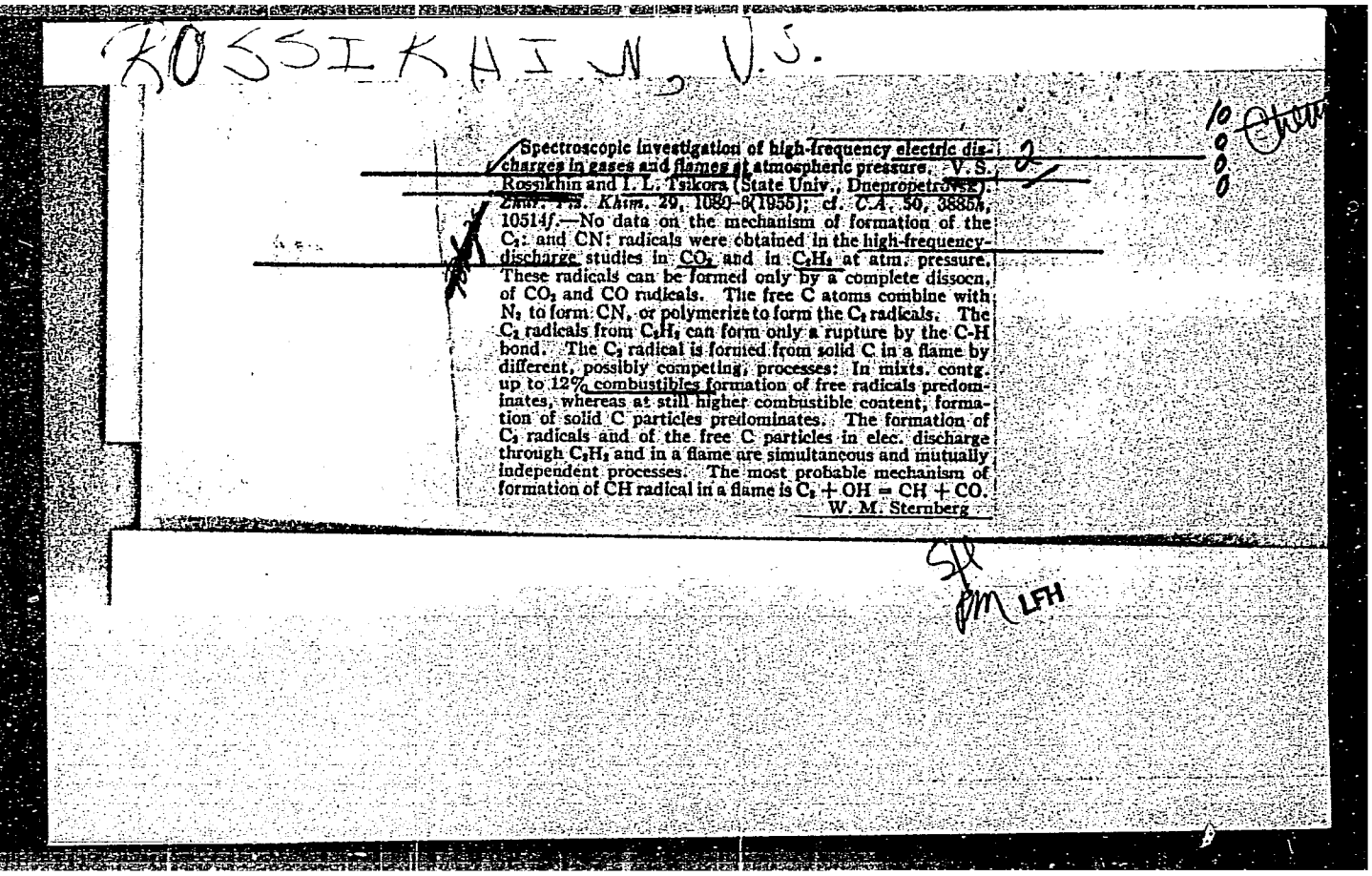
Institution : State University, Dnepropetrovsk

Submitted : .....

ROSSIKHIN,V.S.; TSIKORA,I.L.

Spectroscopic study of high-frequency discharges in gases and flames under atmospheric pressure. Izv. AN SSSR Ser. fiz. 19 no.1:18 Ja-F '55. (MIRA 8:9)

1. Dnepropetrovskiy gosudarstvennyy universitet
(Spectrum analysis) (Spectrometer)

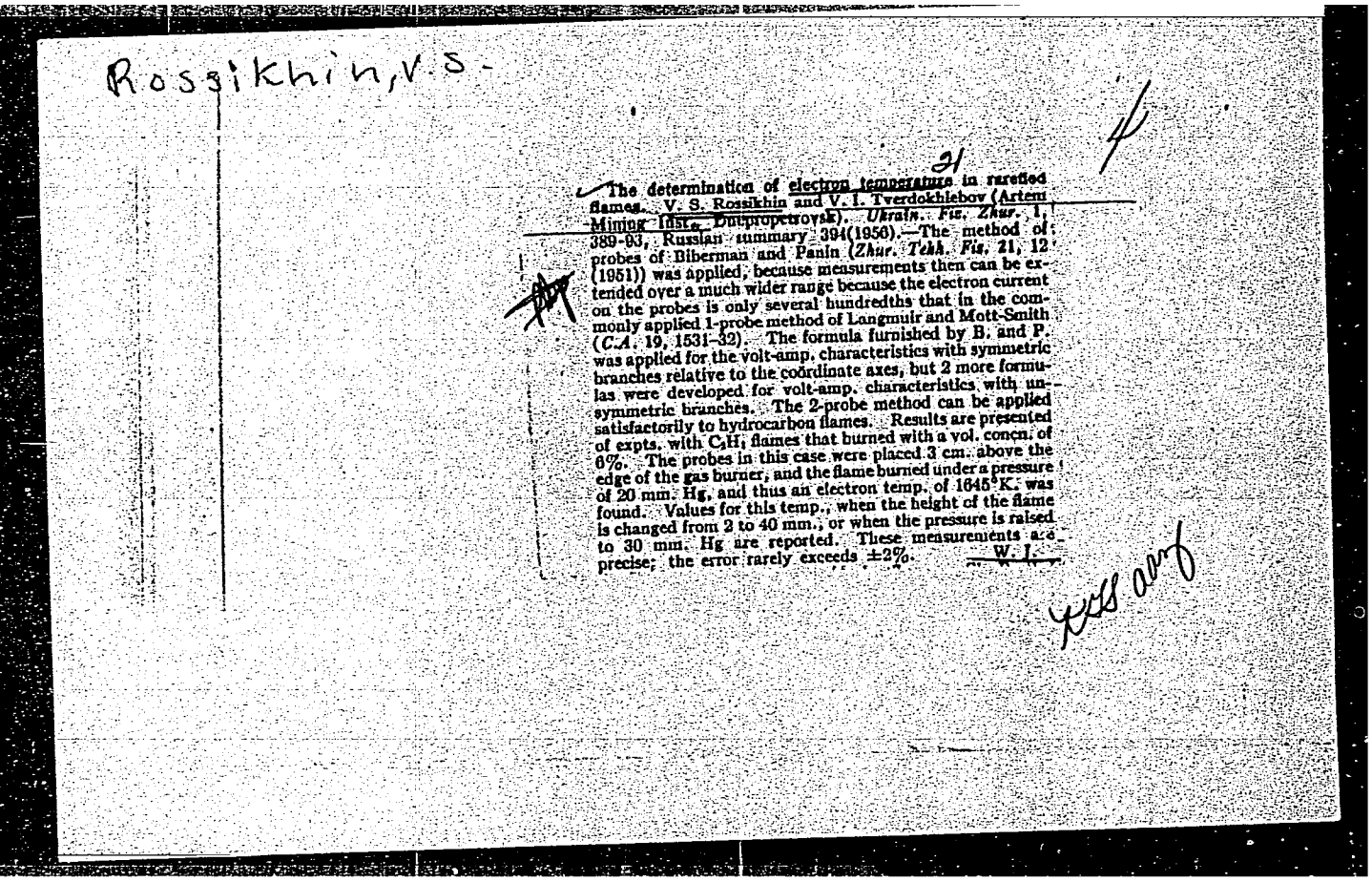


ROSSIKHIN, V. S.

Spectroscopic investigation of high-frequency electric discharges in gases and flames at atmospheric pressure. V. S. Rossikhin and I. L. Tsikora (State Univ., Dnepropetrovsk). *Zhur. Fiz. Khim.* 29, 1080–6(1955); cf. *C.A.* 50, 3885h, 10514f.—No data on the mechanism of formation of the C_2: and CN: radicals were obtained in the high-frequency-discharge studies in CO_2 and in C_2H_2 at atm. pressure. These radicals can be formed only by a complete dissocn. of CO_2 and CO radicals. The free C atoms combine with N_2 to form CN, or polymerize to form the C_2 radicals. The C_2 radicals from C_2H_2 can form only a rupture by the C-H bond. The C_2 radical is formed from solid C in a flame by different, possibly competing, processes: In mixts. contg. up to 12% combustibles formation of free radicals predominates, whereas at still higher combustible content, formation of solid C particles predominates. The formation of C_2 radicals and of the free C particles in elec. discharge through C_2H_2 and in a flame are simultaneous and mutually independent processes. The most probable mechanism of formation of CH radical in a flame is $C_2 + OH = CH + CO$.

W. M. Sternberg

SL
PM LFH



Rossikhin, V.S.

31

The determination of electron temperature in rarefied flames. V. S. Rossikhin and V. I. Tverdokhlebov (Artem Mining Inst., Dnipropetrovsk). *Ukrain. Fiz. Zhur.* 1, 389-93, Russian summary 394(1956).—The method of probes of Biberman and Panin (*Zhur. Tekh. Fiz.* 21, 12 (1951)) was applied, because measurements then can be extended over a much wider range because the electron current on the probes is only several hundredths that in the commonly applied 1-probe method of Langmuir and Mott-Smith (*C.A.* 19, 1531-32). The formula furnished by B. and P. was applied for the volt-amp. characteristics with symmetric branches relative to the coördinate axes, but 2 more formulas were developed for volt-amp. characteristics with unsymmetric branches. The 2-probe method can be applied satisfactorily to hydrocarbon flames. Results are presented of expts. with C_2H_2 flames that burned with a vol. concn. of 6%. The probes in this case were placed 3 cm. above the edge of the gas burner, and the flame burned under a pressure of 20 mm. Hg, and thus an electron temp. of 1645°K. was found. Values for this temp., when the height of the flame is changed from 2 to 40 mm., or when the pressure is raised to 30 mm. Hg are reported. These measurements are precise; the error rarely exceeds ±2%. W. J.

Rossi Kin, V. S.

The mechanism for the formation of certain radicals in a high-frequency discharge. V. S. Rossikhin and I. L. Tsykora (State Univ., Dnepropetrovsk). *Zhur. Fiz. Khim.* 30, 453-6(1956); cf. *C.A.* 50, 3885k.—A mechanism is proposed for the formation of the radicals C_2, CH, CN, and OH on the basis of the spectroscopic study of a high-frequency discharge in CO_2, CCl_4, and in their mixts. with H and N. The formation of C_2 requires the presence of free C atoms and can be represented by the equation $C + C = C_2$. The formation of the CN radical also requires the presence of free C atoms. The CH bond is observed only from mixts. contg. H, the most probable mechanism being the combination of free C and H atoms. — I. P. L.

Rossikhin, V.S.

B-4

USSR/Physical Chemistry - Molecule, Chemical Bond.

Abs Jour: Referat. Zhurnal Khimiya, No 2, 1958, 3505.

Author : V.S. Rossikhin, I.L. Tsikora.
Inst : Dnepropetrovsk University.
Title : Study of Spectra of High Frequency Discharge in Gas Under Atmospheric Pressure.

Orig Pub: Nauch. zap. Dnepropetr. un-ta, 1956, 45, 9-13.

Abstract: The high frequency discharge spectra in air, CO_2 and C_2H_2 under atmospheric pressure produced by a damped oscillation generator (of the Tesla transformer type), or a tube generator were studied. In a discharge spectrum produced by a tube generator, ion bands and lines together with bands and lines of neutral molecules and atoms are present, while a discharge spectrum produced by a damped oscillation generator contains neutral molecule bands, i.e. the first discharge type is of a more "spark" character. Elementary processes proceeding at high fre-

-5-

Card : 1/2

ROSSIKHIN, V.S.

76-12-9/27

AUTHORS: Rossikhin, V.S., Nesterko, N.A.

TITLE: Measurement of Ionization-Intensity in Flames (Izmereniye intensivnosti ionizatsii v plamenakh).

PERIODICAL: Zhurnal Fizicheskoy Khimii, 1957, Vol. 31, Nr 12, pp.2663-2667 (USSR)

ABSTRACT: The object of this elaborate investigation was the measurement of ionization-intensity in steady acetylene-air and acetylene oxygen flames. The presence of a saturation current in steady, previously mixed acetylene-flames was stated. The volt-ampere characteristics of the inner cone of the acetylene-air-mixture with a concentration of 6, 8, 10, 12, 14, 16, 18 and 20% concentration show that the maximum of the saturation current is with the 10% mixture. The 8%-mixture is, according to the conductivity, close to the 12% mixture. The saturation current of the 8% mixture is somewhat lower than that of the 12% mixture. The poor 6% mixture is near to the 16 to 18% mixtures with respect to electric conductivity. The minimum voltage at which a saturation current is observed, corresponds to the rich mixtures (18-20%), whereas the more electric-conductive mixtures (8-12%) show a saturation at much higher voltages. The interval of voltage from the beginning of saturation to the breakdown is greater with less electroconductive mixtures than with those which show a high con-

Card 1/3

ductivity. The acetylene-oxygen flames are characterized by a higher electric conductivity in comparison to the acetylene-air flames. The amount of the saturation current (10^{-4}A) with these flames is approximately for one range greater than the saturation current (10^{-5}A) with the acetylene-air-flames. The interval of voltage at which the saturation-current is observed is smaller in the case of the acetylene-oxygen-flames than with the acetylene-air-flames. It is shown that, according to the plotted table, the intensity of ionization in the zone of reaction is of the order 10^{18} in the case of acetylene-oxygen-flames. In the case of acetylene-air-flames the intensity of ionization amounts to 10^{15}-10^{16}cm^{-3} according to the composition of the mixture, equally in the zone of reaction. The sufficiently high intensity of ionization in the zone of reaction with the acetylene-air-flame indicates a nonthermal character of ionization in the zone of reaction. This is also confirmed by the course of temperature in dependence on the composition of the mixture. It is assumed that the high intensity of ionization in the zone of reaction of the flame is produced by processes which are interrelated with chemical reactions taking place in the zone. There are 3 figures, 1 table, and 9 references, 2 of which are Slavic.

Measurement of Ionization-Intensity in Flames 76-12-9/27

ASSOCIATION: Dnepropetrovsk State University imeni the 300-th Anniversary of the Reunion of Ukraine with Russia (Dnepropetrovskiy gosudarstvennyy universitet imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey).

SUBMITTED: August 7, 1956

AVAILABLE: Library of Congress

Card 3/3

ROSSIKHIN, V.S.; NESTERENKO, N.A.

Intensity of luminosity and ionization in a flame. Fiz.sbor. no.4:320-323 '58. (MIRA 12:5)

1. Dnepropetrovskiy gosudarstvennyy universitet imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey.
(Flame) (Ionization)

SOV/51-5-2-17/26

AUTHORS: Rossikhin, V.S. and Tsikora, I.L.

TITLE: On the Mechanism of Excitation of Atomic Carbon in the Inner Cone of the Acetylene-Oxygen Flame (O mekhanizme vozbuzhdeniya atomarnogo ugleroda vo vnutrennem konuse atsetileno-kislorodnogo plameni)

PERIODICAL: Optika i Spektroskopiya, 1958, Vol 5, Nr 2, pp 202-204 (USSR)

ABSTRACT: Atomic carbon was discovered in hydrocarbon flames by Lauer (Ref 1). The 2478.6 Å line of atomic carbon was found only in the spectrum of the inner cone of the acetylene-oxygen flame. Lauer ascribed this line to the reaction $C_2 + O_2 \rightarrow CO_2 + C$; the authors consider it more likely that the strongly exothermic reaction $C_2 + O_2 \rightarrow 2CO + 270$ kcal/mole is responsible for the 2478.6 Å line. The authors investigated the mechanism of formation of atomic carbon using spectroscopic data. The acetylene-oxygen flame spectra were photographed using spectrographs ISP-22 and ISP-51 with a self-collimated camera UF-85. Fig 1 shows the curves of blackening S of the C_2, CH bands and the 2478.6 Å C line. These curves are shown as functions of the amount of acetylene in the acetylene-oxygen flame. Fig 2 shows the distribution of intensities of the C_2 and CH bands and of the C line along the

Card 1/2

On the Mechanism of Excitation of Atomic Carbon in the Inner Cone of the Acetylene-Oxygen Flame

height of the inner cone in the flame. Comparison of the curves of Fig 1 and 2 shows that in both cases the maximum of the C line coincides only with the maximum of the CH band. This suggests that the process of formation and excitation of atomic carbon involves the radical CH. The following process is suggested:
$CH(^2\Sigma) + H(^2S\frac{1}{2}) \rightarrow C + H_2 + 4.5$ ev. Excitation of atomic carbon in the inner cone of the flame is due to transition of the carbon atom from the metastable state $2p^2\ ^1S$ (produced by the reaction just given) to a higher state $2p^3 3s\ ^1P^o$, with subsequent emission. There are 2 figures and 9 references, 2 of which are Soviet, 2 English, 2 translations, 1 German, 1 Japanese and 1 American.

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet (Dnepetrovsk State University)

SUBMITTED: January 7, 1958

Card 2/2 1. Carbon--Excitation 2. Carbon--Sources 3. Secondary emission 4. Flames--Spectrographic analysis

5(4) SOV/76-33-3-25/41

AUTHORS: Rossikhin, V. S., Nesterko, N. A.

TITLE: Measurement of the Saturation Current in the Outer Cone of Pure and Salt-containing Flames (Izmereniye toka nasyshcheniya vo vneshnem konuse chistogo i solesoderzhashchikh plamen)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 3, pp 665 - 668 (USSR)

ABSTRACT: In continuation of a previous paper (Ref 1) the saturation current in the outer cone of pure and salt-containing air-acetylene flames is studied. By means of a unit with movable Ni-electrodes (surface 0.48 cm^2, distance 0.5 cm) the authors plotted volt-ampere diagrams of the outer cone of a pure flame and flames containing additions of NaCl and KCl in concentrations of 6.10^{11} - 6.10^{18} moles /cm^3 (Fig 1). Only KCl concentrations of 4.10^{16} moles/cm^3 and 2.10^{17} moles/cm^3 NaCl cause the saturation current to increase rapidly (Fig 2). The saturation current and the temperature in the outer cone of the air-acetylene flame within the concentration range of 9-18% acetylene were

Card 1/3

measured. The saturation current of the salt-containing flame increases with temperature, which confirms the thermal nature of ionization within the salt-containing outer cone of the flame. Since the saturation in salt-containing mixtures also rises in proportion to the acetylene content (within the same temperature range) it is assumed that the increase in the saturation current is effected by a thermal emission of electrons from the carbon particles (Ref 2) in addition to the ionization of Na atoms. The fact that no increase in the saturation current occurs by the action of Na addition of up to 2.10^{17} moles/cm^3 and of a K addition of up to 4.10^{16} moles/cm^3 is explained by the presence of a so-called "ionization background"(Ref 3). The size of that ionization background in the outer cone of the pure air-acetylene flame attains an order of magnitude of 10^{11} cm^{-3}. This was obtained by computing the electron concentration for additions of NaCl 2.10^{17} and KCl 4.10^{16} by the Sakh formula. There are 4 figures and 4 references, 2 of which are Soviet.

Measurement of the Saturation Current in the Outer Cone of Pure and Salt-containing Flames SOV/76-33-3-25/41

ASSOCIATION: Dnepropetrovskiy gosudarstvennyy universitet im.300-letiya Vossoyedineniya Ukrainy s Rossiyey (Dnepropetrovsk State University imeni 300th Anniversary of the Reunion of Ukraine and Russia)

SUBMITTED: July 31, 1957

Card 3/3

S/170/60/003/03/17/034
B014/B007

5.5310

AUTHORS: Lyutyy, A. I., Rossikhin, V. S.

TITLE: The Mechanism of the Influence of Additions on the Partial Pressure of an Element to Be Investigated in a Flame

PERIODICAL: Inzhenerno-fizicheskiy zhurnal, 1960, Vol.3, No.3, pp.101-104

TEXT: In the present paper the dependence of the partial pressure of free atoms of the element to be analyzed in a flame on the physico-chemical process is investigated. It is found that in acetylene-air flames (2500°C) in the case of a low alkali - metal content (the authors confine themselves entirely to alkali metals) a complete ionization of the atoms occurs. In the case of an addition of salts of other alkali metals, the equilibrium between metal atoms on the one hand and the metal ions and electrons on the other is shifted to the side of the non-ionized metal atoms. The considerable intensification of luminescence to be expected on the strength of Sakh's formulas is probably weakened by charged particles present in the flame. The authors derive formulas for the calculation of the partial pressure of the free atoms of an element in a flame with and without additions. Table 1 contains results calculated according to the formulas derived. They show that elements with a low ionization potential increase their partial pressure if an easily ionizing metal is added, whereas their partial pressure

Card 1/2

LYUTYY, A.I.[Liutyi, A.I.]; NESTERKO, N.A.; ROSSIKHIN, V.S. [Rossykhin, V.S.]; TSIKORA, I.L [TSykora, I.L.]

Cases of deviation from thermodynamic equilibrium in the outer cone of a flame. Ukr.fiz.zhur. 6 no.6:851-853 N-D '61. (MIRA 16:5)

1. Dnepropetrovskiy gosudarstvennyy universitet im. 300-letiya vossoyedineniya Ukrainy s Rossiyey.
(Spectrum analysis) (Flame)

BUGRIM, Ye.D.; LYUTYY, A.I.; ROSSIKHIN, V.S.

Appearance of the green spectral bands of the MgH molecule in a flame. Opt. i spektr. 10 no.6:804-806 Je '61. (MIRA 14:8)
(Magnesium hydride--Spectra)

ROSSIKHIN, V.S.; TSIKORA, I.L.

Mechanism of the attenuation of CN bands (violet system) in an arc cloud. Opt. i spektr. 11 no.3:415-417 S '61. (MIRA 14:9)

(Electric arc) (Cyanide--Spectra)

S/185/62/007/011/009/019
D234/D308

AUTHORS: Lyutyy, A.I., Nesterko, N.A., Rossikhin, V.S. and Tsykora, I.L.

TITLE: Study of physical and chemical processes in the equilibrium zone of an acetylene flame

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 11, 1962 1214-1216

TEXT: Metallic Na vapor was introduced into the outer cone of the flame and the effect of its presence on the spectral lines of Rb and Cs was studied. The intensity of the latter increased while that of the Ba and Sr lines became lower indicating a displacement of the ionization equilibrium. This can be used for increasing the sensitivity of spectroscopic analysis. The partial pressure of free electrons in pure flame was determined by spectroscopic methods, adding Sr and Ba to air- and oxy-acetylene flames. The order of magnitude of the result agrees with that of the pressure determined from the saturation current. To increase the sensi-

Card 1/2

Study of physical ...

tivity of analysis for the alkali and alkaline-earth metals flames with a high concentration of free electrons should be used in the case of atomic lines, and those with a low concentration in the case of ionic lines. There are 1 figure and 2 tables.

ASSOCIATION: Dnipropetrovs'kyy derzhuniversytet (Dnepropetrovsk State University)

SUBMITTED: March 24, 1962

Card 2/2

S/185/62/007/011/010/019
D234/D308

AUTHORS: Lyutyy, A.I., Nesterko, N.A., Rossikhin, V.S. and Tsykora, I.L.

TITLE: Study of physical and chemical processes in the reaction zone of acetylene flame

PERIODICAL: Ukrayins'kyy fizychnyy zhurnal, v. 7, no. 11, 1962, 1218-1221

TEXT: A detailed review of literature is given. The authors include the results of experiments in which Ca and Mg were introduced into the flame at atmospheric pressure. Intensity of the Mg lines increased on passing from the outer zone to the reaction zone if the excitation energy of the lines was above 4.4 ev. It is concluded that the excitation is controlled by temperature in the outer zone and is anomalous in the reaction zone; for excitation potentials lower than 5 ev it can be thermal in both zones, above 5 ev it can only be anomalous. There is 1 table and 14 references: 18 Soviet-bloc and 6 non-Soviet-bloc.

Card 1/2

ROSSIKHIN, V.S.; TSIKORA, I.L.

Conference on Spectroscopy and its Uses, held at Zaporozh'ye.
Opt.i spektr. 13 no.5:755-756 N '62. (MIRA 15:12)
(Spectrum analysis--Congresses)

ZHITKEVICH, V.P.; LYUTYY, A.I.; NESTERKO, N.A.; ROSSIKHIN, V.S.; TSIKORA, I.L.

Role of ions in a flame containing salt. Izv.vys.ucheb.zav.;fiz.no.2: 78-84 '63. (MIRA 16:5)

1. Dnepropetrovskiy gosudarstvennyy universitet imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey.
(Ionization) (Flame) (Salts)

S/051/63/014/001/006/031
E039/E120

AUTHORS: Zhitkevich, V.F., Lyutyy, A.I., Nesterko, N.A., Rossikhin, V.S., and Tsikora, I.L.

TITLE: The spectroscopic study of dissociation and ionization processes in the flame

PERIODICAL: Optika i spektroskopiya, v.14, no.1, 1963, 35-38

TEXT: The effect of halogens on the line radiation from atoms and ions and also the halide and hydroxide bands of the alkaline earth metals and alkaline metals were studied. The alkali earth metals Mg, Ca, Sr, Ba, and the alkali metals Li, Na, K, Rb, Cs, are supplied to an acetylene-air flame by means of an atomizer from aqueous solutions of the chlorides. Radiation is observed from the outer cone of the flame, 1.5 - 2 cm above the inner cone. The introduction of halides into the flame containing these metals produces a displacement of the dissociation equilibrium leading to a decrease in the number of free atoms and of the hydroxides of these metals and an increase in number of their halides. The intensity of the ionic lines

Card Card 1/2

ZHITKEVICH, V.F.; LYUTYY, A.I.; NESTERKO, N.A.; ROSSIKHIN, V.S.; TSIKORA, I.L.

Excitation of atomic spectra in the reaction zone of the acetylene—air flame. Opt. i spektr. 14 no.3:336-341 Mr '63. (MIRA 16:4)
(Spectrum, Atomic) (Acetylene)

L 19965-63 EWP(q)/EWT(m)/EWP(B)/BDS AFFTC/ASD BW/JD/JG

ACCESSION NR: AP3007230 S/0051/63/015/003/0405/0412

68
67

AUTHOR: Zhitkevich,V.F.; Lyuty*y,A.I.; Rossikhin,V.S.; Tsikora,I.L.

TITLE: Anomalous excitation of metals in flames and in the vapors of some organic substances

14

SOURCE: Optika i spektroskopiya, v.15, no.3, 1963, 405-412

TOPIC TAGS: flame spectrum, radical formation, anomalous excitation, Ca, Cd, Cs, Mg, Na, Pb, Tl, Zn

ABSTRACT: Gas flames consist of three zones: an inner reaction zone, an intermediate zone and an outer zone consisting of the combustion produced in equilibrium. The purpose of the study was to obtain data on the anomalous excitation of the spectrum lines of a number of metals (Ca, Cd, Cs, Mg, Na, Pb, Tl and Zn) in the vicinity of the reaction zone of an air-acetylene flame with the said metals introduced into the flame in the form of vapor with pure helium as the carrier. There were also observed the effects incident to injection of a hot metal vapor stream into a mixture of carbon-containing substances (CCl_4, $CHCl_3$, CHI_3 or CS_2) with air. The flame and injection arrangements are shown in the Enclosure. The

Card 1/3

L 19965-63
ACCESSION NR: AP3007230

burner and evaporator were located at a distance of 35-40 cm from the entrance slit of an ISP-22 spectrograph. A table lists the atomic and ionic lines detected in two parts of the air-acetylene flame (points A and B in the figure) and in the carbon-containing substance mixture. Comparison of the data indicates that the predominant excitation mechanism involved in emission from the cold zone is reaction with oxygen. Elucidation of the precise decomposition and recombination reactions occurring in the vapors requires further investigation. In addition to atomic lines, there were observed some molecular lines as, for example, those of OH. The anomalous excitation mechanism is discussed but no definitive conclusions are drawn. I.B.Bugrim also participated in the work. Orig.art.has: 1 figure and 1 table.

ASSOCIATION: none

SUBMITTED: 02Jan63 DATE ACQ: 09Oct63 ENCL: 01

SUB CODE: PH NO REF SOV: 003 OTHER: 009

Card 2/3

L 18334-63 BDS/EWT(1)/ES(w)-2 AFFTC/ASD/ESD-3/IJP(C)/SSD Pab-4

AUTHOR: Nesterko, N. A., Rossikhin, V. S., Tverdokhlebov, V. I.

TITLE: Investigation of flame ionization by the electrode method

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, No. 4, 1963, 940-942

TEXT: The Thompson electrode method can give much useful data when investigating the ionization of flames; however, any interpretation of experimental data should be made with great caution because of the complexity of the processes which occur in the flame and especially near electrodes. Particular criticism is directed at A. A. Arshinov and I. M. Vostrikov for shortcomings in their work on the electrode method. The most important English-language references read as follows: P. E. Boucher, Phys. Rev., 31, 833, 1928, H. E. Banta, Phys. Rev., 33, 211, 1929, H. E. Wilson, Rev. Mod. Phys., 3, 156, 1931.

ASSOCIATION: Gosudarstvennyy Dnepropetrovskiy universitet imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey i Dnepropetrovskiy Gornyy institut imeni Artema (State Dnepropetrovsk University imeni the 300th Anniversary of the Reunion of the Ukraine with Russia and the Dnepropetrovsk Mining Institute imeni Artem)

SUBMITTED: December 22, 1961

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L 16119-65 EWT(1)/EWG(k)/EWT(m)/EPA(sp)-2/EPF(c)/EPF(n)-2/EPA(w)-2/T/EWP(t)/
EWA/EWP(b) Pab-10/Pr-4/Pu-4 ESD(t)/RAEM(i)/ESD(gs)/AEDC(b)/SSD/AFWL/ASD(a)-5/
IJP(c) JD/AT

ACCESSION NR: AP4044169 S/0185/64/009/008/0870/0875

AUTHOR: Ostroumenko, P. P.; Rossikhin, V. S.

TITLE: On the mechanism of excitation of the copper spectrum in a hollow cathode

SOURCE: Ukrayins'ky*y fizy*chny*y zhurnal, v. 9, no. 8, 1964, 870-875

TOPIC TAGS: excitation mechanism, spectrographic copper determination, hollow cathode discharge, discharge temperature

ABSTRACT: The authors studied spectroscopically the discharge in a hollow copper cathode in various gases, pressures, and currents. The effect of small additions of Ar, O_2, CO_2, CCl_4, H_2 and air to helium, which was the main discharge carrier, on the intensity of spectral lines was investigated. It was established that by the choice of the gas carrier, and of the nature and the amount of additions, the sensitivity of copper determination in the hollow cathode can be considerably increased. The excitation temperature as a function of current and gas pressure was determined by the method of the relative intensities of

Card 1/2

L 16119-65

ACCESSION NR: AP4044169

copper lines. Orig. art. has: 5 figures, 1 table

ASSOCIATION: Dnipropetrovs'ky*y derzhuniversy*tet(Dnepropetrovsk State University)

SUBMITTED: 29Jun63 ENCL: 00

SUB CODE: NP, GP NO REF SOV: 009 OTHER: 006

Card 2/2

[redacted], V.P.; ROSSIKHIN, V.S.

Thermal study of discharges of hollow cathodes. Izv. vys. ucheb. zav.; fiz. 8 no.4:17-22 '65. (MIRA 18:12)

1. Dnepropetrovskiy gosudarstvennyy universitet imeni 300-letiya vossoyedineniya Ukrainy s Rossiyey. Submitted December 21, 1963.

L 11603-66 EWT(m)/EWP(t)/EWP(b) IJP(c) JD

ACC NR: AP5025310 SOURCE CODE: UR/0051/65/019/004/0653/0655

AUTHOR: Ostroumenko, P.P.; Rossikhin, V.S.

27

B

ORG: none

TITLE: Measurement of relative values of oscillator strengths in the spectrum of the copper atom by the "linear absorption" method

SOURCE: Optika i spektroskopiya, v. 19, no. 4, 1965, 653-655

TOPIC TAGS: oscillator strength, copper, spectral line, resonance line

ABSTRACT: Relative values of oscillator strengths of the copper atom were measured by the "linear absorption" method for nine lines in five multiplets located in the 2160 — 3280 Å range with a common lower level $3d^{10}4s\ ^2S_{1/2}$. If the Doppler effect and the Lorentz collision effect simultaneously participate in the broadening of a spectral line, the absorption coefficient at the center of the line is expressed by the formula

$$k_0 = \frac{2}{\sqrt{\Delta\nu_L^2 + \Delta\nu_D^2}} \sqrt{\frac{\ln 2}{\pi}} \frac{\pi e^2}{mc} Nl, \qquad (1)$$

where $\Delta\nu_L$ is the Lorentz half-width; $\Delta\nu_D$ is the Doppler half-width, e is the electronic charge; m is the mass of the electron; c is the velocity of light in a vacuum; N is the

Card 1/2 UDC: 539.184:546.56

L 14603-66

ACC NR: AP5025310

number of absorbing atoms, and f is the oscillator strength of the line. Knowing the experimentally measured value of absorption A_{α}, from the resulting curve of the dependence of $A\alpha$ on k_0l and α one can find values of k_0l, then represent graphically the dependence of these values of k_0l on N1. According to equation (1), this is a straight line; α is found by selection so that the relationship between k_0l and Nl remains linear. The relative values of oscillator strengths for the resonance lines of copper agree with results obtained by the hook method and by the total absorption method. Orig. art. has: 1 table and 3 formulas.

SUB CODE: 20 / SUBM DATE: 13Mar65 / ORIG REF: 007 / OTH REF: 007

Card 2/2

L 31511-66 EWT(m)/EWP(j)/EWP(t)/ETI IJP(c) JD/WH/JG/RM
ACC NR: AP6013019 SOURCE CODE: UR/0051/66/020/004/0568/0575

AUTHOR: Bugrim, Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L. 66 B

ORG: none

TITLE: Singularities in the excitation of the Swann bands of C_2 in vapor jets of metals and organic compounds

SOURCE: Optika i spektroskopiya, v. 20, no. 4, 1966, 568-575

TOPIC TAGS: carbon, band spectrum, chemiluminescence, vapor state, emission spectrum, excited electron state, relaxation process

ABSTRACT: This is a continuation of earlier work (Opt. i spektr. v. 15, 406, 1963) where it was observed that the spectra of glowing metal vapor show a clearly pronounced chemiluminescence character in the presence of the vapor of carbon-containing compounds (CCl_4, $CHCl_3$, CHI_3), and the observation of the Swann band system of C_2. The purpose of the present investigation was to study in greater detail the spectrum of the C_2 molecule excited upon coalescence of vapors of several metals and CCl_4. The apparatus used for the vapor production was described in the earlier paper. The emission spectrum of the C_2 molecule was obtained by means of a photoelectric setup based on a monochromator and photomultiplier. To

UDC: 535.338.33 + 539.196.2

Card 1/2

L 31511-66
ACC NR: AP6013019

study the singularities of the C_2 spectrum, the zone of the reaction of Li vapor and CCl_4 was used, and it was found that the main features of the C_2 spectrum in the metal-vapor reaction zone was an anomalous distribution of the intensities among the edges of the Swann system bands. The results have shown that variation of the temperature leads to a change in the population of the vibrational levels of the $d^3\Pi_g$ electron state, and the character of the population of these levels was established for excitation of the C_2 molecule in reactions of Li, K, Na, Cs, and Mg with CCl_4. An analysis of the relative intensities of the spectra and of the relative populations of the first vibrational levels in the $d^3\Pi_g$ state indicates that the experimental results can be reconciled with the theory of vibrational relaxation in the excited electron states. Orig. art. has: 4 figures, 3 formulas, and 3 tables.

SUB CODE: 20/ SUBM DATE: 22Dec64/ ORIG REF: 008/ OTH REF: 007

Card 2/2 mc

L 46134-66 EWT(1)/EEC(k)-2/T/EWP(k) IJP(c) WG/RTW/AT

ACC NR: AP6025950 SOURCE CODE: UR/0051/66/021/001/0027/0032

AUTHOR: Bugrim, Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.

ORG: none

TITLE: Oscillatory relaxation of diatomic molecules in the excited electron state

SOURCE: Optika i spektroskopiya, v. 21, no. 1, 1966, 27-32

TOPIC TAGS: excited electron state, diatomic molecule, molecular property, molecular structure, molecular spectrum, excitation energy, excitation spectrum, quantum oscillation, shock wave oscillation

ABSTRACT: The process of oscillatory relaxation in diatomic molecules in an excited state is considered when these molecules constitute an impurity in a carrier gas. The expressions for the determination of energy exchange efficiency are derived based on the observed values of the population of the unstable levels. A diatomic molecule may be considered to be an oscillator. If diatomic molecules are contained as a small admixture in a carrier gas, the oscillatory relaxation takes place under isothermic conditions. This phenomenon can be described by the differential equation

$$\frac{dX_{v'}(t)}{dt} = K\left\{v'e^{-\theta}X_{v'-1} - [v' + (v'+1)e^{-\theta}]X_{v'} + (v'+1)X_{v'+1}\right\} - A^{*}X_{v'}, \qquad (1)$$

$$v' = 0, 1, 2 \ldots$$

UDC: 539.196.3

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L 06189-67 EWT(l)/EWT(m)/EEC(k)-2/EWP(t)/ETI/EWP(k)/EWP(l) IJP(c) WG/RTW/JD

ACC NR: AP6027735 SOURCE CODE: UR/0020/66/169/004/0858/0860

50
B

AUTHOR: Bugrim. Ye. D.; Lyutyy, A. I.; Rossikhin, V. S.; Tsikora, I. L.

ORG: Dnepropetrovsk State University (Dnepropetrovskiy gosudarstvennyy universitet)

TITLE: Vibrational relaxation of the C_2 molecule in the excited electronic state

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 858-860

TOPIC TAGS: gas discharge spectroscopy, CC radical, Swan band, carbon, excited electron state, vibration relaxation, diatomic molecule

ABSTRACT: A spectroscopic investigation was carried out of the effect of various gases on the emission of Swan bands of C_2 excited in an electrical discharge. A condensed discharge was passed through a tube (described) filled with the gas of interest at a reduced pressure. A clearly visible afterglow was observed along the discharge path, whose spectrum consisting of Swan bands of C_2 was investigated. The gases used were CO(pressure range, 10—45 mm Hg), 0.5% CO + 99.5% He (10—700 mm Hg), and 0.5% CO + 99.5% Ar (10—150 mm Hg). The results are reported and interpreted in terms of the theory of vibrational relaxation of diatomic molecules in the excited electronic state. Orig. art. has: 1 figure and 1 table. [W.A. 68] [SM]

SUB CODE: 20/ SUBM DATE: 06Oct65/ ORIG REF: 007/ OTH REF: 006

Card 1/1 af UDC: 535.337

ACC NR: AT7000303 SOURCE CODE: UR/3142/60/150/007/0193/0200

AUTHOR: Nesterko, N. A.; Rossikhin, V. S.

ORG: none

TITLE: Saturation current in flames

SOURCE: Odessa. Universitet. Trudy, v. 150. Seriya fizicheskikh nauk, no. 7, 1960. Voprosy isparenlya i goreniya v dispersnom vide (Problems of evaporation and combustion in the dispersed state), 193-200

TOPIC TAGS: combustion, flame control, external combustion stimulus, electric field, acetylene

ABSTRACT: A theoretical analysis has determined the conditions for producing a saturation current in a flame placed in an electric field. The flame outer cone was considered where, in contrast to the inner cone, ionization was expected to be spatially uniform. It was shown that when a flame is placed in an electric field, charged layers form along the electrodes (see Fig. 1); the thickness of such layers depends upon many factors. The conditions for producing a saturation current were found to be: 1) electrodes must be flat and parallel and free of contaminants (including traces of soot); 2) electrodes must be mobile and the time of residence of electrodes in the flame must be such that heating does not give rise to thermionic emission; 3) the gap (d)

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ACC NR: AT7000303

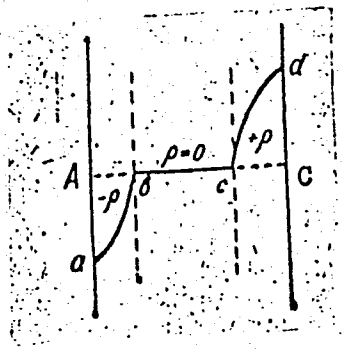

Fig. 1. Charged layers along electrodes in a flame placed in an electric field. Y is the charge density

between the electrodes must not exceed the thickness (l_c) of the cathodic layer, but must exceed a certain distance (l_0) at which at relatively high voltages impact ionization will occur, i.e.,

$$l_0 < d \leq l_c.$$

Experimental work involved measurements by a previously described method for acetylene-air and acetylene-oxygen flames, of inner-cone saturation current and outer-cone temperature as a function of acetylene concentration in the mixture. It was found that the pattern of the outer-cone temperature change does not correspond to that of the inner-cone

Card 2/3

ACC NR: AT7000303

saturation current change. Comparison of the data on inner-cone saturation current vs. acetylene concentration with similar previously obtained data for the outer cone also showed a lack of correspondence. This was regarded as confirming the chemical nature of the ionization in the inner cone (flame reaction zone) in contrast to the thermal ionization prevailing in the outer cone. Calculation of the ionization rate (q) was made using the saturation current data and the equation $i_c = qed$, where i_c is the saturation current density. Also measured was the charged particle concentration (n_0) in the inner and outer cones of an acetylene-air flame. The recombination coefficients (γ) in the inner and outer cone were then calculated from the formula $\gamma = q/n_0^2$. Based on the inner- and outer-cone values of γ, it is postulated that ionic recombination is the prevailing recombination process in both cones. Orig. art. has: 1 figure and 7 formulas. [W. A. 68] [SM]

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 004/ OTHER REF: 006

Card 3/3

ACC NR: AT7000303 SOURCE CODE: UR/3142/60/150/007/0193/0200

AUTHOR: Nesterko, N. A.; Rossikhin, V. S.

ORG: none

TITLE: Saturation current in flames

SOURCE: Odessa. Universitet. Trudy, v. 150. Seriya fizicheskikh nauk, no. 7, 1960. Voprosy isparenlya i goreniya v dispersnom vide (Problems of evaporation and combustion in the dispersed state), 193-200

TOPIC TAGS: combustion, flame control, external combustion stimulus, electric field, acetylene

ABSTRACT: A theoretical analysis has determined the conditions for producing a saturation current in a flame placed in an electric field. The flame outer cone was considered where, in contrast to the inner cone, ionization was expected to be spatially uniform. It was shown that when a flame is placed in an electric field, charged layers form along the electrodes (see Fig. 1); the thickness of such layers depends upon many factors. The conditions for producing a saturation current were found to be: 1) electrodes must be flat and parallel and free of contaminants (including traces of soot); 2) electrodes must be mobile and the time of residence of electrodes in the flame must be such that heating does not give rise to thermionic emission; 3) the gap (d)

Card 1/3

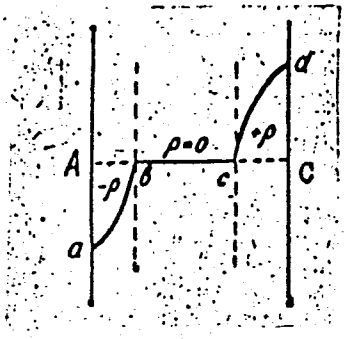

Fig. 1. Charged layers along electrodes in a flame placed in an electric field. γ is the charge density

between the electrodes must not exceed the thickness (l_c) of the cathodic layer, but must exceed a certain distance (l_0) at which at relatively high voltages impact ionization will occur, i.e.,

$$l_0 < d \leq l_c.$$

Experimental work involved measurements by a previously described method for acetylene-air and acetylene-oxygen flames, of inner-cone saturation current and outer-cone temperature as a function of acetylene concentration in the mixture. It was found that the pattern of the outer-cone temperature change does not correspond to that of the inner-cone

ACC NR: AT7000303

saturation current change. Comparison of the data on inner-cone saturation current vs. acetylene concentration with similar previously obtained data for the outer cone also showed a lack of correspondence. This was regarded as confirming the chemical nature of the ionization in the inner cone (flame reaction zone) in contrast to the thermal ionization prevailing in the outer cone. Calculation of the ionization rate (q) was made using the saturation current data and the equation $i_c = qed$, where i_c is the saturation current density. Also measured was the charged particle concentration (n_0) in the inner and outer cones of an acetylene-air flame. The recombination coefficients (γ) in the inner and outer cone were then calculated from the formula $\gamma = q/n_0^2$. Based on the inner- and outer-cone values of γ, it is postulated that ionic recombination is the prevailing recombination process in both cones. Orig. art. has: 1 figure and 7 formulas. [W. A. 68] [SM]

SUB CODE: 21/ SUBM DATE: none/ ORIG REF: 004/ OTHER REF: 006

Card 3/3

ACC NR: AP7008891 SOURCE CODE: UR/0368/66/005/004/0553/0553

AUTHOR: Rossikhin, V. S.

ORG: none

TITLE: Conference on emission spectroscopic analysis and atomic spectroscopy

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 4, 1966, 553

TOPIC TAGS: atomic spectroscopy, physics conference, steel impurity

SUB CODE: 20, 11

ABSTRACT: For purposes of coordination of research and exchange of experience, a Ukrainian SSR Conference on Emission Spectroscopic Analysis and Atomic Spectroscopy was held at Dnepropetrovsk on 5-8 July 1966. The conference was organized by the Commission on Optics and Spectroscopy of the Ukrainian Academy of Sciences, Dnepropetrovsk State University, and the Institute of Electric Welding imeni Ye. O. Paton, Ukrainian Academy of Sciences, together with the Ministry of Ferrous Metallurgy of the Ukrainian SSR. More than 180 specialists in this field, including 30 visitors from other USSR cities, participated in the conference. At two plenary and ten sectional sessions that were held, 85 reports were presented and discussed that dealt with photoelectric methods of spectroscopic analysis; atomic absorption analysis; processes at electrodes and in low-temperature plasma; flame spectroscopy; determination of impurities present in small amounts in metals and alloys; analysis of slags, ores, and minerals;

Card 1/2 UDC: none 0929 1695

ACC NR: AP7008891

sources of light in spectroscopy; and new equipment. The resolution passed by the conference pointed out that atomic spectroscopy and emission spectroscopic analysis are used extensively at Ukrainian scientific research institutions and industrial enterprises, where they are of help in solving many problems in theoretical and applied fields. The work of the conference demonstrated that work on the introduction of photoelectric methods into the metallurgical, metal working, and chemical industries and on the application of spectroscopy in the automation of technical processes has not yet been developed to a sufficient extent in the Ukrainian SSR. Insufficient research is being done in the field of the physics of electron shells of atoms, including quantum-mechanical calculation of electron levels, the theory of atom collisions, thermochemical processes in low-temperature plasma, etc. The proceedings of the conference will be published in the form of a special volume. [JPRS: 39,658]

Card 2/2